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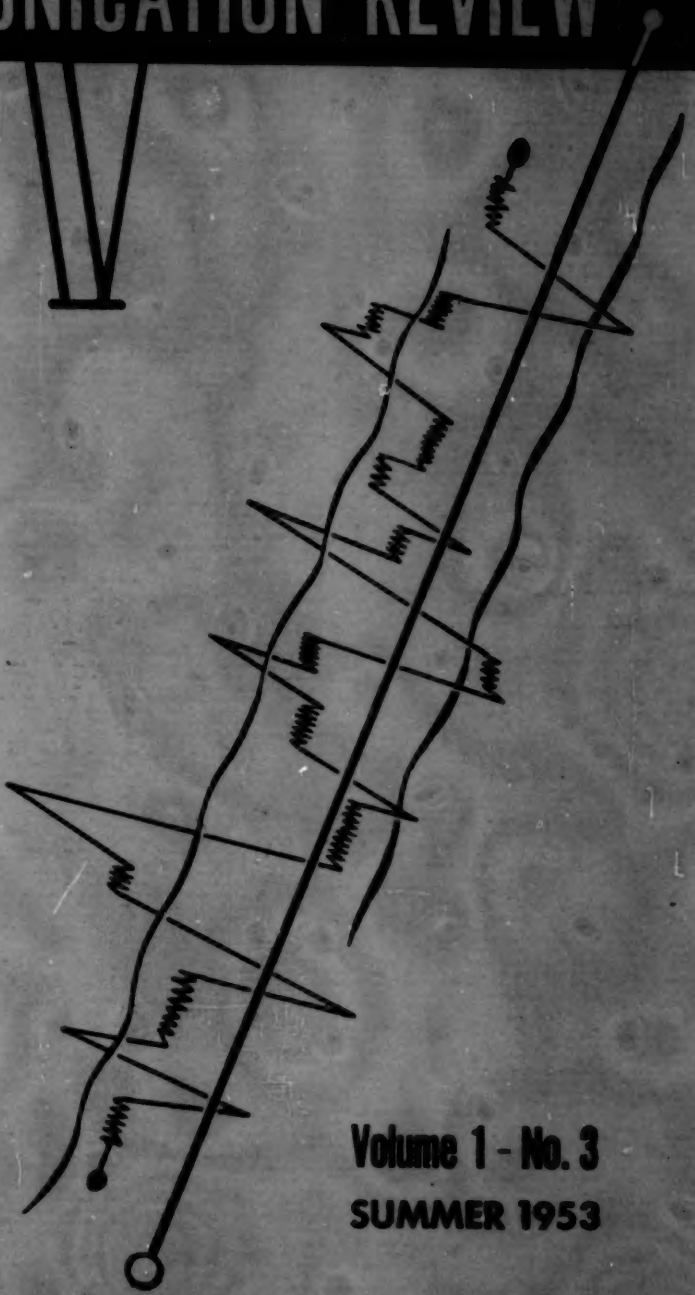
AUDIO VISUAL

COMMUNICATION REVIEW



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PRESENTING INFORMATION IN DIAGRAMS

● M. D. VERNON

The effective presentation of information by graphical methods is a problem of real concern to anyone attempting to communicate ideas. M.D.Vernon has conducted, for a number of years, original research on the problem. In this article she summarizes her studies and draws some rather definite conclusions regarding comparative effectiveness of different graphical materials.

Dr. Vernon is senior lecturer in Psychology at the University of Reading, England, and is well known for her research and writings in the area of visual perception.

In recent years there has been a tendency to make use of diagrams to present factual data, not only in scientific publications, but also in books, pamphlets, and articles intended for the general reader. The discussion of many social problems is rendered clearer and more definite if it is possible to quote actual figures about numbers of people concerned and the effects on them of various conditions, or about quantities of goods, or amount of money involved. It is, of course, all to the good that writers should quote such definite factual information to support their arguments. But many readers, particularly, if they are not very intelligent or highly educated, dislike being confronted with columns or tables of figures. They may indeed refrain from even trying to read the articles in which these are quoted. Thus the practice has grown up of presenting these numerical data diagrammatically.

The argument is that the unsophisticated reader can see and understand such data more easily if they are presented to him visually than if they are shown in tables of figures. Some authorities would go even further, and say that the information will be more easily assimilated in visual form than if it is stated in words. The school child, the semiilliterate adult, and the foreigner find it difficult to understand written English; but visual material should be the same for everyone. Hence also the popularization of the pictogram or isotype chart, which is considered to be more like a picture than is an ordinary diagram; and is therefore more readily comprehensible. (See Figs. 1, 2, and 3.)

These arguments and assumptions have little evidence to support them. It is probably true that in many cases curiosity may be aroused by the charts, especially insofar as they are novel and unusual. But this does not mean that the information which they are intended to convey will be understood and assimilated. In investigations carried on over many years, with many different types of people, I have found that often the re-

WEEKLY WAGES, POPULATION AND DEATH-RATE OF 777 FAMILIES IN 1930.[1]

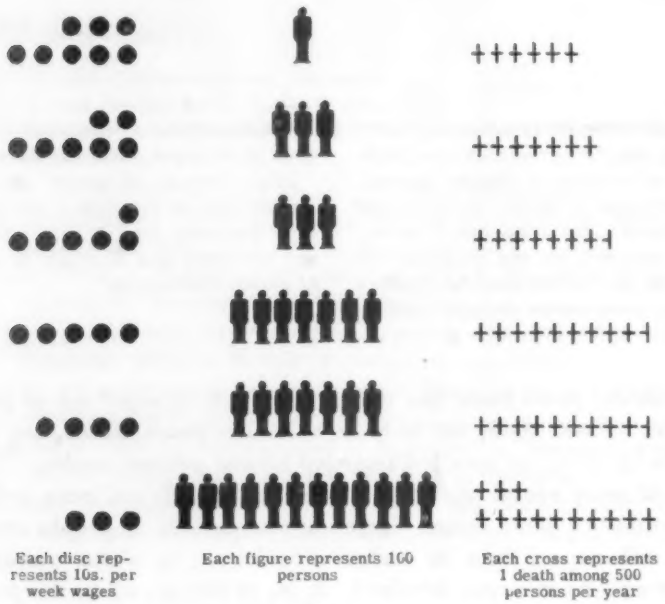
Each disc represents 10s. per week wages
Each figure represents 100 persons
Each cross represents 1 death among 500 persons per year

FIGURE 1.

[1]Figure 1 was based on a special survey in a particular locality carried out in 1930. The data shown in Figures 2, 3, 4, and 8 appeared in a Government White Paper, issued in 1944 on "Statistics Relating to the War Effort of the United Kingdom." Most of the information shown in Figures 5, 6, 8, 10, 11 was based upon statistics given in the reports of the Registrar General for England and Wales.

verse is true. It must be remembered that, even if these charts appear simple and obvious, they are not direct representations of the facts they present, as a picture directly represents events and situations. The "little men" in a chart are symbols of large groups of people behaving in different ways, or exposed to different conditions. Thus the individual who looks at the chart has to interpret what the chart means—that is to say, the generalized propositions about events and conditions to which it relates.

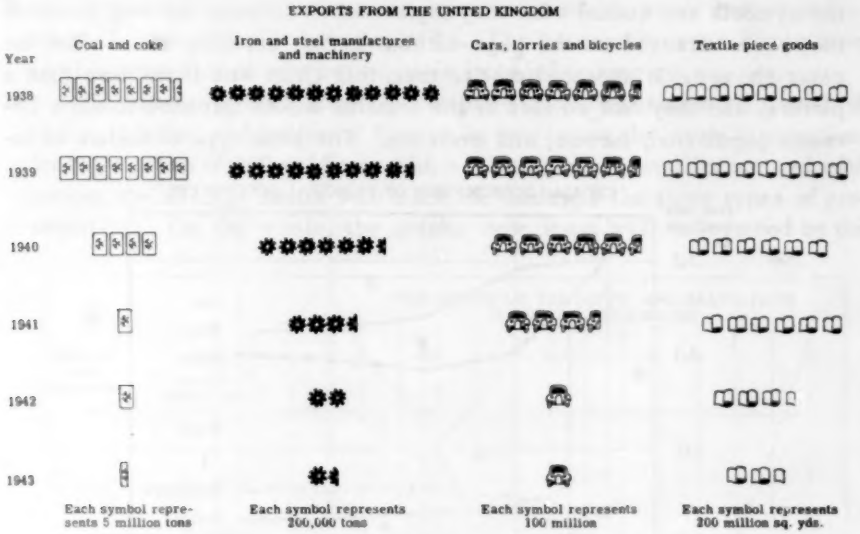

FIGURE 2.

I found in the first place that adults—even fairly well educated adults such as students training to be teachers—did not always understand even what a chart was about. Shown the chart in Fig. 1,[1] one individual reproduced it in a drawing, and said, "I can remember the general picture, but I did not properly grasp its meaning." Some described

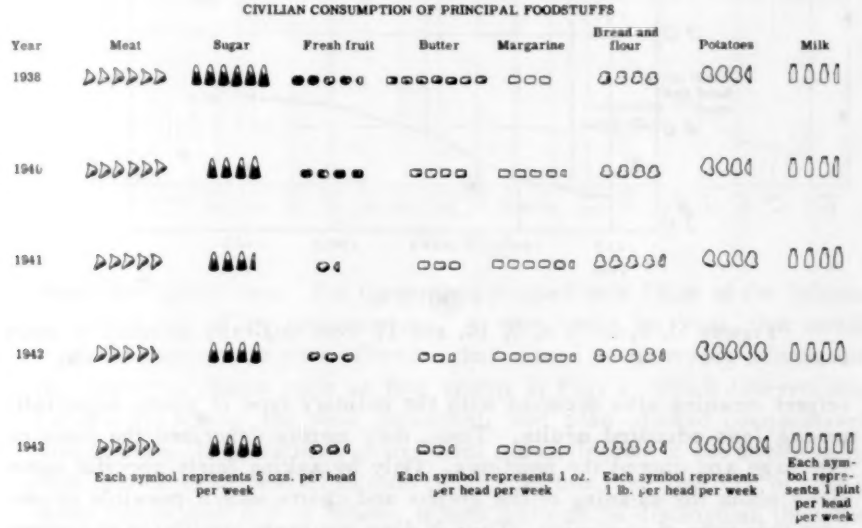

FIGURE 3.

the symbols and quoted what they represented and some the way in which they were arranged on the page without saying anything about what the chart showed. It appeared that to them this chart was little more than a picture, and they had no idea of the relation it was intended to show between population, income, and mortality. The same type of failure to in-

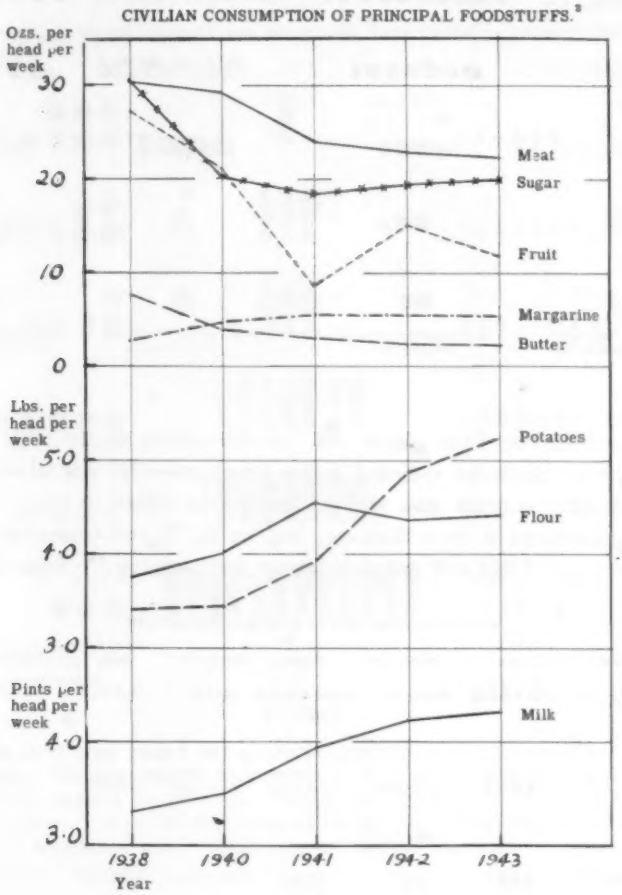

FIGURE 4.

[2]Figures 4, 5, 6, 7, 8, 9, 10, and 11 were originally prepared on graph paper.

terpret meaning also occurred with the ordinary type of graph, especially among less educated adults. Thus, they merely described the lines on the page and quoted the headings. Only by asking fairly specific questions about the meaning of the graphs and charts was it possible to prevent this type of confusion. Thus it does not seem justifiable to assume

that a pictorial chart can convey information which would not be understood if given verbally or numerically. The person who sees it may have no idea what sort of information he is intended to receive.

In further investigations, I compared the comparative efficiency of charts, graphs, and tables of figures in presenting the same information. Among a group of 100 soldiers, with a wide range of intelligence and education, the average result was much the same for the three types of presentation. On the whole, the graphs were least well understood by the

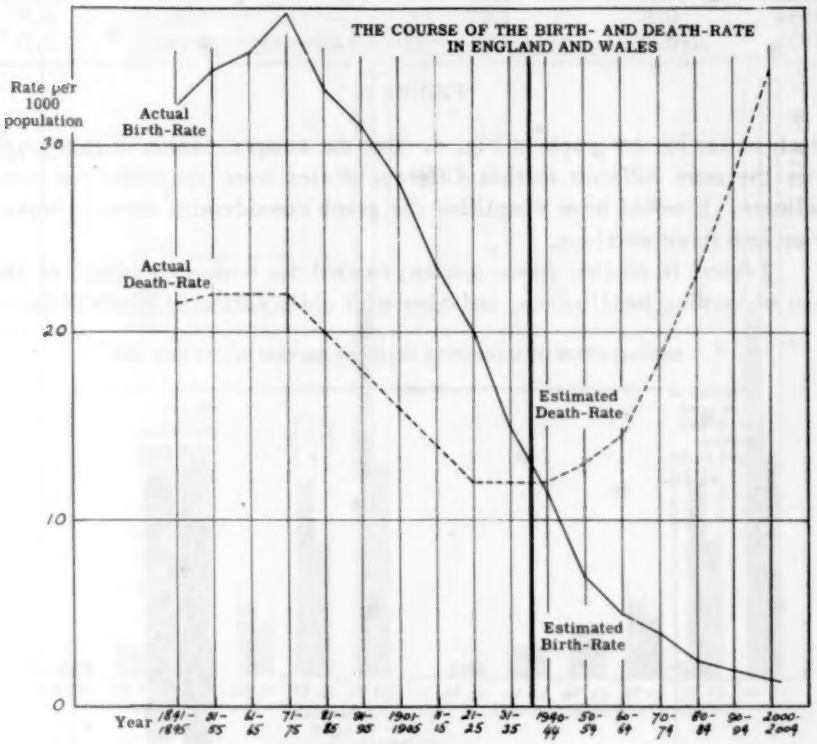

FIGURE 5.

least intelligent men. But these men grasped very little of the information from any of the presentations. It was found, however, that certain types of charts were more effective than others in conveying information; for instance, charts such as that shown in Fig. 2, which differentiated pictorially among the data presented, and also showed comparatively simple data. In particular, charts were more effective if the trends of the data shown were parallel in direction. If trends rose and fell, or rose in some cases and fell in others, it was difficult to distinguish them from each other. This is apparent in Fig. 3, the data of which were shown

THE ABILITY OF THE POPULATIONS OF VARIOUS COUNTRIES TO REPRODUCE THEMSELVES

Year	*Number of female children per adult woman in*				
	England and Wales	*Scotland*	*France*	*Germany*	*Sweden*
1900	1.73	1.86	-	2.20	-
1910	1.44	1.57	1.22	-	1.80
1920	1.36	1.55	1.15	1.12	0.86
1930	0.93	1.16	1.10	0.86	0.79
1932	0.90	1.11	-	0.80	0.78
1934	0.87	1.07	-	0.98	0.73
1936	0.88	1.07	1.00	1.04	0.76

FIGURE 6.

much better by the graph in Fig. 4. But the comprehension of this graph was the more difficult in that different scales were shown on the same ordinate. It would have simplified the graph considerably to have broken it up into three sections.

I found in another investigation, carried out both with groups of airmen of varying intelligence, and also with older school children of fairly

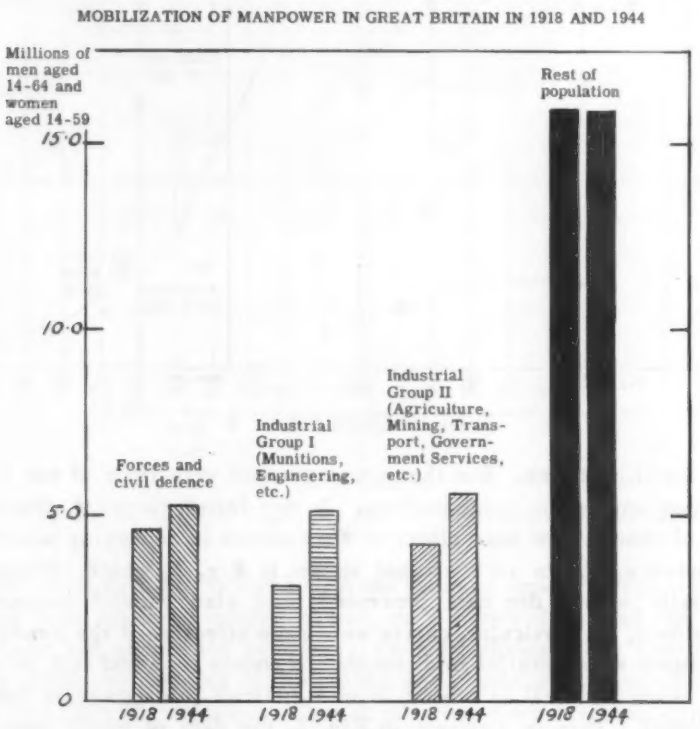

FIGURE 7.

good intelligence, that points of transition or interception in trends of data were also shown best in graphs. Thus Fig. 5 indicates exactly the point at which it was predicted that the birth rate in England and Wales would fall below the death rate (tho this in actual fact never happened). The point did not appear at all clearly in a chart. A similar point of importance would be that at which the net reproduction rate of a population falls below 1.0, since this is the point at which the population ceases to replace itself and must begin to decline. In fact, it was found that this information was most readily remembered when the data were presented

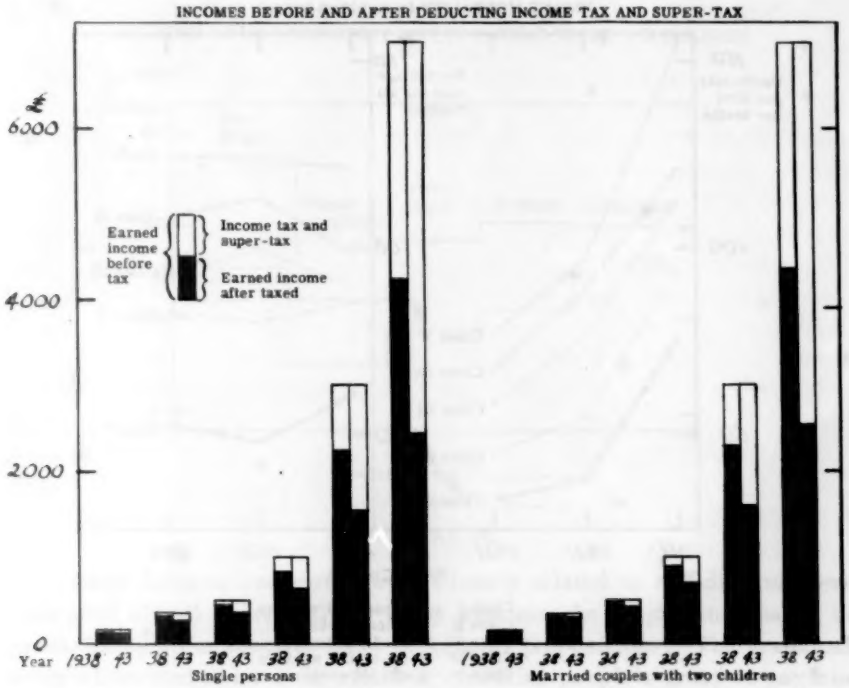
INCOMES BEFORE AND AFTER DEDUCTING INCOME TAX AND SUPER-TAX
£
6000
4000
2000
0
Earned income before tax
Income tax and super-tax
Earned income after taxed
Year
1938 43 38 43 38 43 38 43 38 43 38 43
1938 43 38 43 38 43 38 43 38 43 38 43
Single persons
Married couples with two children

FIGURE 8.

in a table of figures, for here it was obvious when the rate exceeded or fell below 1.0. (See Fig. 6.) It seemed that exact numbers were more liable to be noted and remembered if they were given in tables of figures.

It has been pointed out that it is really more justifiable to use histograms (block graphs) than continuous line graphs to represent discontinuous functions or quantities. And indeed it appeared that with comparatively simple data, such as those shown in Fig. 7, the former were easier to understand than were the latter. But more complex data, such as those of Fig. 8, were actually harder to grasp, because of the number of variables included within a single graph. It might have been broken up into

several simpler ones. But it would then have lost the advantage of providing a simultaneous comparison between the various effects of taxation. It is not easy to carry the eye backwards and forwards between a number of separate graphs. Nevertheless, it is probably undesirable to introduce more than two, or at most three, variables into a single graph.

But I concluded that the main factors determining the comprehensibility of diagrams were the complexity of the data they presented, and of the concepts and technical terms which they employed. In general, simple quantities, such as those shown in Figs. 2, 3 and 7, were more

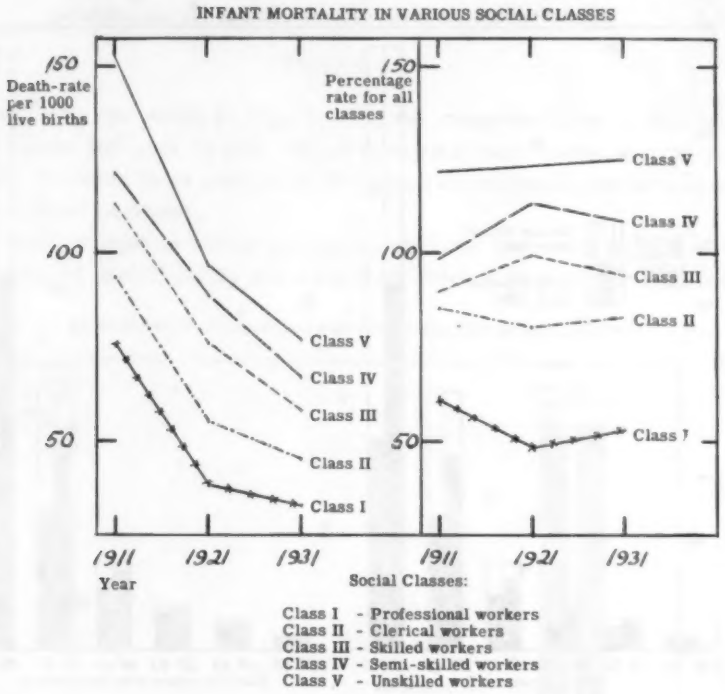

FIGURE 9.

easily understood than were ratios, such as percentages. Birth and death rates were harder still, since they involve three quantities—number of births (or deaths), number of population, and period of occurrence (one year). When a fourth variable is introduced, as in comparative mortality, or in a percentage on average death rate, the data may become quite incomprehensible. Among the hundred or more people (including university students) who saw the graph in Fig. 9, hardly anyone understood what was implied by the right-hand part of the graph. This graph is of course further complicated in that it shows families of curves for the different socio-economic classes. Yet it is based on a figure included in a semi-

popular book on poverty, designed to prove that infant mortality had decreased *comparatively* less in the lower than in the higher socio-economic classes. Difficulties in grasping the underlying ideas were also apparent in the comprehension of data relating to size of population, birth and death rates. Thus comparatively few people seemed to understand that the population will continue to increase as long as the birth rate exceeds the death rate. The birth rate of Britain has fallen for many years (see Fig. 5), but so also has the death rate, and therefore the population has continued to increase. But many people thought that because the birth rate had been decreasing, the population had also been decreasing.

RELATION OF UNSATISFACTORY DIET TO VARIOUS DEFECTS IN CHILDREN

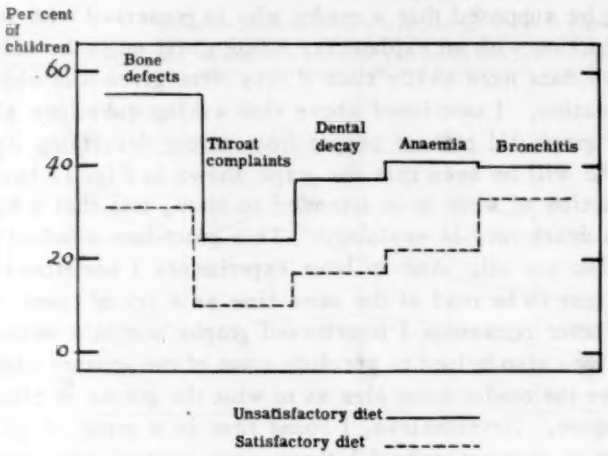

FIGURE 10.

Many failures and errors were closely related to the difficulty experienced almost universally by those who saw the graphs and charts, in generalizing from specific facts to general propositions. The graphical material seemed to have the effect of confining people's grasp to particular cases, and preventing them from seeing their general implication. Thus when shown the graph in Fig. 10, some of the airmen gave a list of specific defects, but were apparently unable, even when questioned, to make the simple generalization that malnutrition produced a higher incidence of numerous defects in children. Failure to generalize was even more apparent in the answers to questions relating to the conclusions which could be drawn from a whole set of graphs or charts; for instance, as to the relation of disease to poverty, or of the war to civilian habits of spending and consumption.

It seems clear, therefore, that some kind of training is essential for the effective use of particular graphical material; for the understanding of

concepts such as percentages and rates; and for generalizing from specific facts to wider conclusions. But perhaps even more important is the acquisition of an adequate background of general knowledge and information. For instance, several of the soldiers who saw Figs. 2 and 8 could not understand them because they knew nothing about exports and imports, or about income tax. Again, ignorance of population statistics was very general, One common-sense notion that caused considerable confusion was that the poorer classes of the population would have fewer children than the richer classes, because they were less able to maintain them; whereas, the graphs showed quite conclusively that for many years in Britain the birth rate has been in inverse proportion to the socio-economic status.

It might be supposed that a reader who is presented with graphical data in conjunction with an explanatory written text might be able to understand these data more easily than if they were given him without any further explanation. I mentioned above that asking questions about the meaning of a graph did prevent people from merely describing its visual appearance. It will be seen that the graph shown in Fig. 11 has a brief verbal description of what it is intended to show, and that a technical term such as death rate is explained. This procedure eliminated some difficulties, but not all. And in later experiments I sometimes gave a short written text to be read at the same time as a set of charts was examined. On other occasions I interleaved graphs within a written text. These procedures also helped to preclude some of the grosser misconseptions, and gave the reader some idea as to what the graphs or charts were intended to show. Nevertheless, I found that in a group of girls aged 15½–17½ from a grammar school,[3] there were several who seemed to have no idea as to how graphical data should be utilized in conjunction with a written text. Instead of comparing the charts with the verbal statements, and checking them against one another, they read the text thru, laid it aside, and afterwards looked at the charts. Some of these dealt with birth and death rates, and the confusions and misconceptions described above were often encountered. However, some university students who were also tested had apparently learnt how to use the graphical data more efficiently. They compared them with written text, and the seldom made these mistakes. This stresses once more the importance of training in the use of data of this kind.

When the interleaved graphs and written text were studied, there was less tendency to ignore the graphs while reading the text. But it did not follow that the information from the text and graphs was satisfactorily as-

[3]A "grammar school" in Britain is a school giving a predominantly academic education to the 15–20 percent most intelligent children in the population between the ages of 11 and 18.

similated. This material was studied by another group of girls, aged 16–18, from another grammar school. When asked to recall the content in their own words, they showed a tendency to state a number of isolated facts, illogically jumbled together; and to omit the essential or key points of the argument. One such point was the relationship of size of population to birth and death rates. Furthermore, there was a failure to grasp a coherent meaning from the whole passage which often resulted in the distortion even of the isolated statements. Thus, in a discussion of the relationship of disease to poverty, it was stated in the text that "Tubercu-

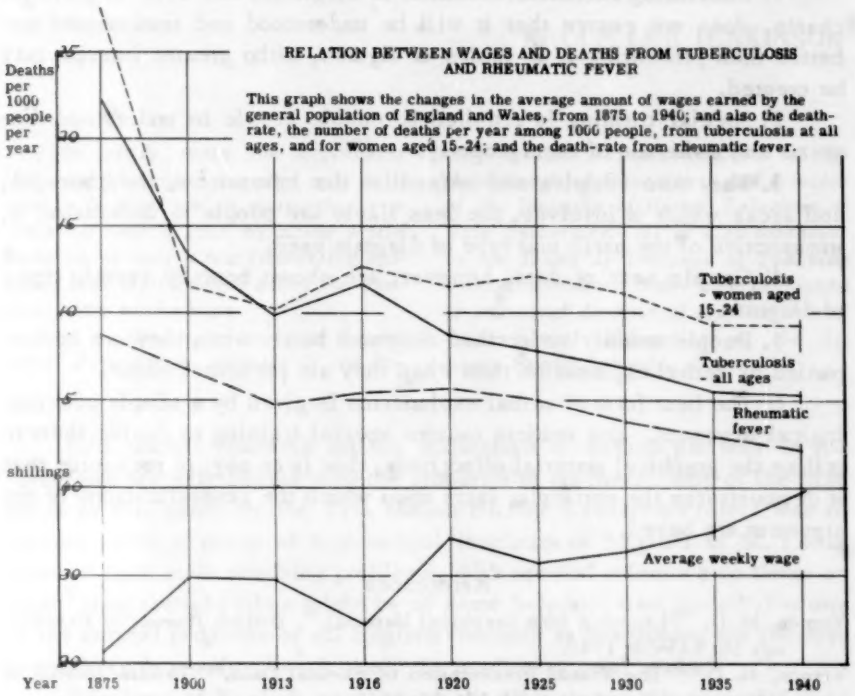

FIGURE 11.

losis, which is particularly fatal to young women, has a close relationship to wages." This is illustrated in the graph shown in Fig. 11. This statement was reproduced more than once as "Tuberculosis is fatal to young women." Moreover, the tendency to reproduce isolated and erroneous statements was apparently enhanced rather than checked by the inclusion of the graphical material. These errors were more frequent among those who saw the graphs as well as reading the text, than among those who only read the text. It may be concluded that these girls also were unable to make a satisfactory use of the graphical material. They could

not integrate the specific information it presented within the framework of a coherent logical argument, the generalized statements of which were based upon the specific information given graphically. This kind of generalization is of course of paramount importance in any kind of work on the physical, biological, or social sciences. It seems clear that special training is required to enable even the fairly well-educated to make it.

Conclusions

The following general conclusions may then be drawn:

1. Presenting factual information in diagrams, and even in pictorial charts, does not ensure that it will be understood and remembered any better than presenting it in tables of figures, altho greater interest may be created.

2. Special training is required to enable people to understand diagrams and make use of them properly.

3. The more complex and unfamiliar the information, the concepts, and ideas which it involves, the less likely are people to understand it, irrespective of the particular type of diagram used.

4. Certain sets of data, however, are shown best by certain types of diagram.

5. People usually understand diagrams better when they are accompanied by verbal explanation than when they are presented alone.

6. The best form of verbal explanation is given by a simple coherent logical argument. But readers require special training to enable them to utilize the graphical material effectively, that is to say, to recognize that it demonstrates the particular facts upon which the generalizations of the argument are based.

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Acknowledgments

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DEVELOPING INTEREST IN READING WITH FILM

● MARK A. MAY and
NELLE LEE JENKINSON

This study tests the hypothesis that a high-school teacher can do a more effective job in motivating students to read a book by using a film made up of only a few interesting episodes than a film which gives the complete story of the book.

Mark A. May is professor of Educational Psychology, director of the Motion Picture Research Project of the Department of Education, and director of the Institute of Human Relations at Yale University. He is also president of the Board of Trustees of Teaching Film Custodians. Nelle Lee Jenkinson is assistant director of the Division of Audio-Visual Education of the St. Louis Public Schools.

Educational research on the utilization of motion pictures in the classroom properly begins with the problems of teachers. One of the first steps in this study by the Yale Motion Picture Research Project was to discuss with a group of high-school teachers of English in St. Louis some of their main teaching problems, with special reference to those on which they thought films might be of some help. It was agreed that one of the central problems of all English teachers is developing the interest of students in reading, particularly the reading of good books.

Teachers of English were among the first to see the potential uses of theatrical motion pictures in schools as a possible means of increasing the interest of students in good literature. It was thru their persistent efforts to secure the release of films of this type for use in schools that educators formed the organization known as Teaching Film Custodians, which cooperates with the Motion Picture Association of America in making available to schools classroom versions of such notable films as *David Copperfield*, *A Tale of Two Cities*, *Jane Eyre*, *Mutiny on the Bounty*, *Romeo and Juliet*, *Treasure Island*, *Kidnapped*, and others.

Evidence that seeing a feature motion picture based on a book will stimulate interest in the reading of that book has been reported by the Cleveland Public Library. When the film *David Copperfield* was shown in

Cleveland, the Library discovered that all available copies (450) in its main building and branches went into circulation. Five months later only nine of the 67 copies of the book in the Main Library were on the shelves.[1]

A second step in the study was to work out with the teachers some of the ways of translating the general problem into definite propositions which could be tested experimentally. Among the specific questions developed for possible study were:

1. By showing a film as an introduction to a book, can a teacher get more students to withdraw and read the book than she can without the film?

2. If a film that is used to introduce a book presents a condensed version of the full story, will it tend to lessen the interest that some students might otherwise have in reading the book?

An hypothesis growing out of the exploration of the second question is the subject of the experimental study reported later.

A third step was the classification of the types of activity which must be motivated in order to secure the reading of a book. One way of classifying the steps which must be taken by a reader is: (a) withdrawing the book from the library or buying it, (b) taking it home, (c) picking it up and starting to read it, and (d) reading it at various times until the book is finished. There are many pitfalls in this chain of events which result in failure to achieve the desired objective. Some books never get home. Many books that are taken home never get opened and many a book fails to hold the interest of the reader and he puts it down after the first few pages or chapters. Motivation must, therefore, extend over a period of time and surmount these obstacles.

Problems Revealed in Classroom Tryouts

A series of small-scale tryouts were made to help define the questions and the variables to be included in the experimental study. Some of the difficulties encountered are described in this section for the benefit of other research workers concerned with this general area of study.

Selection of a suitable book and film for use in the experiment proved troublesome. At an early stage some consideration was given to the use of *Huckleberry Finn.* However, so many students had read the book or seen the film or both that this book-film combination was abandoned. This directed attention to the necessity of making another selection that would include a book not widely read and the story of which had not previously been learned from a film, radio program, or comic book based on it. After reviewing available films, it appeared that the Teaching Film Custodians' version of Robert Louis Stevenson's *Kidnapped*

[1] *When Books and Movies Meet.* Roberts and Belle, publicity representatives of the Cleveland Public Library, 1936. p. 2-3.

best met these specifications. This was a condensed version of the full-length feature motion picture produced by Twentieth-Century-Fox.

Further discussions with these teachers of English revealed that *Kidnapped* is one of Stevenson's books that is not widely read by high-school students because many students find the book difficult reading, particularly the first parts of it. It was recognized, therefore, before the experiment began, that a book had been selected that would require strong motivation.

Another difficulty was that of securing a reliable measure of the amount of reading the students actually did. In one tryout students were asked to report to the student classroom librarians the proportion of the book read. However, when these same students were again asked, a day later, to report on their reading as the first item on an objective test, they revised their estimates sharply downward. It is probably true that some students in both groups entered exaggerated claims to begin with, but it is also probably true that some students who had valid claims decided to be more modest about them when confronted with an objective test. A method of partially overcoming this difficulty is described later.

Making the books available in classroom libraries did not work out satisfactorily. Placing the books where the teacher could observe the withdrawals, even tho the books themselves were handled by student librarians, motivated so many students to withdraw books (approximately 90 percent) that there was little ceiling left in which film motivation could operate. Many of the students in the remaining group were probably confirmed nonreaders. The method used thereafter was to place the books in the regular school library.

Still another problem came up which called for further study. A sizeable group of students said that they read the book because they were influenced to do so as a result of seeing the film. There was also a smaller group of students who said that they did not read the book because they had seen the film and knew what the story was about already.

When Teaching Film Custodians began excerpting films for classroom use, it was decided to cut full-length feature films down to less than 40 minutes, preserving as much as possible of the full story. Evidently there was enough of the story in this version of *Kidnapped* to give some students the feeling that they did not want to read the book. The analysis of the above finding led the investigators to develop the hypothesis that a film which presents a few exciting episodes without indicating how the story comes out will be more effective in motivating the students to read the book than one giving the full story. On the basis of this theory, John Braslin, Director of Film Materials for Teaching Film Custodians, developed a new version of the film. The new film will be referred to hereafter as the "motivational version," and the one present-

ing the full story in condensed form will be referred to as the "regular version."

The motivational version was developed by using three sequences exactly as they appear in the regular version but with some additional footage. The opening scene of the motivational version, for example, shows the book itself with an attractive cover. The book is then opened to the page covering the first exciting incident. After a few lines are read by the narrator, there is a direct cut to the film sequence based on this incident. The same procedure is followed in introducing the other two incidents. The film closes with the narrator suggesting that the pupils might like to read about other exciting incidents and find out how the story ends. The film is something of a "teaser" version planned to put the student in the frame of mind, "This looks interesting; I'd like to know more about this book." The motivational film is 18 minutes in length and the regular film 28 minutes in length. A tryout of the two versions of the film in four classes revealed differences of sufficient magnitude to warrant the development of a controlled experiment.

The Experimental Study

Problem

This study tests the hypothesis that a teacher can do a more effective job in motivating students to read a book by using a film made up of only a few interesting episodes, rather than one which gives the full story.

Method

A total of 13 teachers, each with two freshman English classes, participated in the project. In the case of each teacher, one class saw the motivational version and the other class saw the regular version of the film.

Each teacher was instructed to use the film in a manner that would follow as closely as possible her normal procedure for using films of this type. All teachers were directed not to offer special inducements for reading the book, such as giving special credit or even hinting that it was a requirement.

Classes were selected for assignment to the motivational and the regular film groups in such a manner that the total of each was balanced for IQ, Iowa Reading Test score, sex ratio, size of group, and whether classes met before or after lunch. In order to compare the two groups it was necessary first to eliminate from consideration all pupils who were absent when the film was shown or when the test was given at the end of the experiment, or who reported on a preliminary questionnaire that they

knew the story of the book either from having read it, seen the movie, or read a comic book based on it. After these eliminations had been made, there remained a total of 480 students in the 26 classes. Of these 235 were in the regular film group and 245 in the motivational film group. A check was again made of the balance between the two groups with respect to the factors mentioned above. While the balance was not quite as even as it was originally, it was regarded as satisfactory for the purposes of the experiment.

On the first day of the experiment both groups received from the teacher a general introduction to the book and the film. Each teacher was asked to use the same general presentation in both groups. On the second day each group was shown its respective version of the film. On the third day there were follow-up discussions, and the teacher announced that copies of *Kidnapped* were available in the school library.

The students were not told that this was an experiment or that a test would come later, or given any hint that there was any compulsion involved. After four weeks, each teacher administered the objective test on *Kidnapped* to all classes.

This experiment was designed to reveal how far film and teacher motivation would carry a pupil along the line that stretches from withdrawing the book from the library, taking it home, picking it up and starting to read it, to finishing it. The records of each pupil were arranged to show how far along this road each had traveled: (a) The librarian's record of who withdrew the book, (b) the student's report of whether he started to read and how much he read, and (c) the score on an objective test based on the book which measured the ability to recall certain salient points in the story.

Results

The results of this experiment are here reported in sequence, beginning with the withdrawal of the book and ending with the test. A summary of the results is presented in Table I and Figure 1.

With respect to the first measure, withdrawing the book from the library, the results are clearly in favor of the new motivational version of the film. Sixty-three pupils, or 27 percent, of the motivational film group, as against 50, or 20 percent, of the regular film group, withdrew the book from the school library. In only one of the 13 pairs of classes did the latter group withdraw more books than the former group. Statistically the difference between the motivational and the regular film groups is significant at the five percent level of confidence.

There was no statistically significant difference between the two groups in the number starting to read the book or in the number who read half or more of it. Upon analysis of the pupils' own reports on the test

TABLE I

EFFECTS OF MOTIVATIONAL VERSION AND OF REGULAR VERSION OF THE FILM, *KIDNAPPED*, ON THE READING OF THE BOOK

Proportion of Pupils Who:	Film Version	Boys	Girls	Total
		%	%	%
1. Withdrew book from school library	Motivational	20.9	32.0	26.8 *
	Regular	15.2	24.0	20.4 *
2. Reported having started to read book	Motivational	30.0	36.8	33.6
	Regular	27.2	35.0	31.8
3. Reported reading half of book or more	Motivational	20.9	21.6	21.2
	Regular	16.2	21.2	18.7
4. Achieved test scores indicating that they actually read some of the book	Motivational	32.6 *	22.4	22.9
	Regular	15.2 *	17.8	16.7

*Difference significant at 5% level on basis of paired comparisons of the motivational film and regular film classes under the same teacher, evaluated by means of Wilcoxon sum.

blanks as to whether or not they started to read the book, a curious fact comes to light. More pupils reported starting to read *Kidnapped* than the librarians had recorded as having withdrawn the book. Out of the 245 pupils in the regular film group, 79 reported starting to read but only 63 were listed as having withdrawn the book. Similarly, out of the 235 pupils in the motivational film group, 78 reported starting to read but only 50 were listed as having withdrawn the book. Part of the discrepancy may come from the fact that youngsters sometimes borrow from each other; some may already have had the book in their homes; some may have taken it from the public library; others may have entered an exaggerated claim. Forty-six out of 245 of the regular film group and 50 out of 235 of the motivational film group claimed to have read half or more of the book.

On the final measure of effectiveness, the objective test, every regular film class scored on the average higher than its corresponding motivational film class. This would be expected, in view of the fact that the longer regular version of the film tells much of the story and provides answers to several items on the test. Therefore, a student who had seen the longer version would be better prepared for the test than the student who had seen only the three episodes contained in the new version. After allowance has been made for this differential, there is no significant difference between average test scores.

Previous mention has been made of the difficulty of getting students to report the extent of their reading honestly and accurately. A method

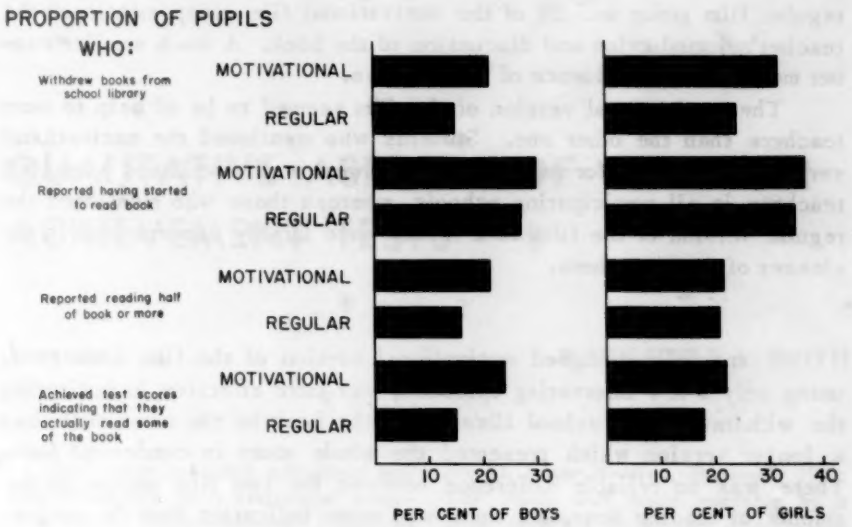

FIGURE 1

was worked out for using the scores on the objective test for checking on this point.

First, distributions were made on the scores of the admitted nonreaders, keeping the two film groups separate. These distributions showed the highest scores that could be expected to result from seeing the film only. Those who claimed also to have read the book would be expected to score higher. Therefore, if a pupil's score was more than two standard deviations above the mean of the nonreaders in his film group, his claim to having read the book, or part of it, was accepted.

Second, a count was made of the number of pupils in each film group who claimed to have read some of the book, and whose test scores met the above criterion. When boys and girls are grouped together, there are no significant differences between the two film groups in respect to the percentages of pupils reaching the criterion. But when boys are separated out, the difference between the motivational film boys and the regular film boys, in respect to the percentage of those whose scores reached the criterion, was statistically significant at the five percent level of confidence. Apparently boys were more highly stimulated to read carefully by the special motivation film than by the regular film. This difference between boys and girls on high scores on the tests indicated that perhaps *Kidnapped* is, as would be expected, a book that appeals more to boys that to girls.

In response to the question as to why the pupils started reading the book, 49 of the motivational film group and 43 of the regular film group mentioned the motion picture as a motivating factor. Twenty-five of the

regular film group and 20 of the motivational film group mentioned the teacher's introduction and discussion of the book. A much smaller number mentioned the influence of schoolmates.

The motivational version of the film seemed to be of help to more teachers than the other one. Students who mentioned the motivational version as a reason for reading the book were well distributed among all teachers in all participating schools, whereas those who mentioned the regular version of the film as a reason were largely concentrated in the classes of three teachers.

Summary

A specially designed motivational version of the film *Kidnapped*, using only a few interesting episodes, was more effective in motivating the withdrawal from school libraries of the book by the same title than a longer version which presented the whole story in condensed form. There was no reliable difference between the two film groups in the amount of reading done, but there was some indication that the motivational version stimulated boys to read more carefully, and a greater proportion of them therefore made higher scores on an objective test.

The results of this experiment suggest that producers of classroom films in this particular field need to consider the possibility of making fewer general purpose films and developing more films around very specific objectives of teaching. One of these which needs attention is the problem of motivation covered by this study.

In its program of excerpting feature films for school use, Teaching Film Custodians, the organization which developed the film materials used in this experiment, is moving in the direction of selecting shorter excerpts for meeting more specific teaching objectives.

QUALITATIVE ASPECTS OF GAIN ON ACHIEVEMENT TESTS

● HERBERT A. SMITH

This paper furnishes additional evidence relative to a statistical procedure—the "Effectiveness Index"—discussed by Hovland, Lumsdaine, and Sheffield in Experiments on Mass Communication. *It was originally presented to Section Q of the American Association for the Advancement of Science at the St. Louis Meeting, December 1952.* *The Study was made possible by a grant from the University of Nebraska Research Council.*

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The use of the same or equivalent forms of a test has frequently been employed to measure the effect of experimental variables in educational research. The procedure has usually involved a pretest, application of the experimental variable(s) and a posttest. The difference in scores, or gain as it is more commonly termed, is an index of the effect of the factor(s) under consideration. With the comparison of many different factors, it is possible to study the relative effect of the application of different experimental variables thru the statistical analysis of gain. This method has been fruitful in a wide range of educational research studies. It is well adapted for purposes of group comparisons when the groups are shown to be relatively similar in composition, and when they attain approximately the same level of achievement on pretests. However, investigators and their interpreters have not always recognized these limitations. The use of gain to compare groups of radically different composition and of significantly different initial test standings could be shown to be open to question. Even more hazardous is the indiscriminate use of gain to compare subgroup and individual performance.

It has been shown elsewhere that bright students are frequently discriminated against in comparisons based on gains on final over initial measures because they tend to score higher on pretests (4). Thus, when

gains are the criteria employed to compare performance at different levels of intelligence, the results are likely to be deceptive. In the field of audio-visual aids, several studies have been critically evaluated in order to consider some apparently faulty inferences which have resulted thru failure to consider the qualitative aspect of gains (5).

The number of items responded to correctly on the initial administration of a test as well as the difficulty of the individual items on which students establish their gain are points which seldom receive consideration. The question presents itself as to what extent initial standing affects gains. The further question of the relation of item difficulty to the quality of the gain is pertinent. It appears entirely possible that equal actual gains could mean two distinctly different levels of achievement when these factors are considered. The study herein reported was undertaken to investigate the effect of these factors as they pertain to students of different levels of intelligence.

In a recent publication, the initial standing of individuals on pretests as a factor influencing the effectiveness of films in teaching stated:

> ...If nearly all members of the population are unfamiliar with a particular fact prior to a film showing, a very effective film can yield a numerically large change when effects are expressed in this way. But if nearly everyone is already familiar with the fact, the effect is limited in size because only a small proportion did not know the fact initially and therefore only a small effect of the film can be obtained.
>
> Thus the measure has serious disadvantages for determining the relative effectiveness of a film in teaching two different facts that are not equally well known initially. A different ceiling is imposed on the magnitude of effect for each different initial level, and the comparison is biased against items that are well known initially. Similarly, the measure introduces a bias if used for comparing the effects of a film on two or more groups that differ in initial level prior to the film. For example, if nearly all of the better educated know a particular fact, they can show little learning if effects are measured as the difference between control and film percentages, whereas the poorly educated, who are in general poorer learners, can show a large effect because they knew so little to begin with that there was considerable room for improvement (2:284).

While the authors cited above are primarily concerned with group comparisons, it is apparent that their reasoning applies with equal force to individuals within each group. In order to compensate for the bias resulting from differences in initial standing, these same authors developed a measure which they termed an "effectiveness index." The formula for this index was given as

$$\frac{P_2 - P_1}{100 - P_1}$$

in which P_1 is the percentage of correct responses on the initial test and

P_2 the percentage correct on the final test. They were also able to show that (2:286)

$$\frac{P_2 - P_1}{100 - P_1} = \frac{k_2 - k_1}{100 - k_1}$$

in which k_2 and k_1 represent the percentages actually known. The values of P_1 and P_2 are, of course, larger than they should be because of a guessing factor. The formula is based on the assumption that the proportion of unknown items guessed correctly remains constant on initial and final tests. Hence, to the extent that this assumption is warranted, the use of the percentages obtained gives an estimate of effectiveness unbiased by the factor of guessing.

It was possible to modify this index and to show that the same relationship holds when actual scores are used as measures of initial and final achievement. In this case S_2 and S_1 represent scores on final and initial

$$\frac{S_2 - S_1}{n - S_1} = \frac{k_2 - k_1}{n - k_1}$$

tests respectively, and n is the number of items in the test; and k_2 and k_1 represent the items actually known. Obviously, $S_2 - S_1$ is the quantity commonly termed "gain" and $n - S_1$ would be the "possibility of gain" for any particular individual.

The writer has discussed the relation between intelligence as measured by an intelligence test and the learning resulting from motion pictures elsewhere (5). Intelligence and gain on various tests were shown to be positively correlated. Would the use of the effectiveness index change the relationship previously found? If the hypothesis that the use of gain discriminated against the brighter students were correct, the relationship found should change and in the direction of a higher positive correlation. The findings tended to verify this hypothesis. The correlations found using raw gain and the effectiveness index separately correlated with intelligence are shown in Table I. The writer is indebted to *The Nebraska Program of Educational Enrichment Through the Use of Motion Pictures* for the basic data analyzed in this report. While even a brief resume of this program is beyond the scope of this investigation, it is necessary to point out the fact that experimental and control groups were established and that the only experimental variable involved was the use of films in the experimental sections and nonuse of films in the control sections. Results on *Cooperative Tests* of the American Council on Education and film tests based on the content of films used in the study provided the basic data analyzed in this report. A more complete

TABLE I

COMPARISONS OF CORRELATIONS FOUND BETWEEN INTELLIGENCE AND THE EFFECTIVENESS INDEX AND BETWEEN INTELLIGENCE AND GAIN

Subject Area	Experimental			Control		
	r_{ie}	r_{ig}	N	r_{ie}	r_{ig}	N
American History						
Standardized test	.441	.269	245	.330	.213	105
Film test	.413	.292	245	.175	.204	105
World History						
Standardized test	.248	.223	415	.380	.359	181
Film test	.213	.112	415	.297	.296	181
General Science						
Standardized test	.366	.212	207	.314	.325	150
Film test	.240	.170	207	.133	.143	150

In order to obtain the r's shown in this table, the z-transformation was employed to combine the r's from different classes. The removal of school differences thru use of the method of analysis of covariance left the values of the obtained r's practically unchanged.

explanation of the program is available in the final report of the Nebraska Program (3).

An examination of Table I shows that higher positive correlations in all composite experimental classes were obtained when the effectiveness index gain was correlated with intelligence. In control sections, similar results were obtained on the standardized tests in American history and world history, whereas, the values in general science were nearly identical. It is doubtful that the values obtained for the control sections on the film test should receive much consideration. Since the policy followed in the Nebraska Program had been to select films primarily for their enrichment contributions over and beyond those values which normally result from class instruction, it was unlikely that students in control classes should gain much of the information contained in the films during the school year. Under these conditions, their responses on the film tests, which were based entirely on the content of the film, could be little better than random responses, and thus a pattern consistent with findings on the other tests could hardly be expected.

Because of the fact that the coefficients are correlated, i.e., they are based on the same groups, and further, because of the common factor,

$$S_2 - S_1$$

in gain and the effectiveness index, there appears to be no satisfactory method available for determining the statistical significance of the obtained differences. However, the tendency toward a higher positive correlation when the effectiveness index is correlated with intelligence ap-

pears to be fairly conclusive and tends to confirm the hypothesis that the use of gain discriminated against the brighter pupils.

A final check on the hypothesis of discrimination was made thru use of the technic of partial correlation. Use of the effectiveness index demonstrated the influence of initial standing as a factor affecting the relation found between intelligence and different measures of achievement, i.e., gain and percent of possibility. What would be the relation between gain and intelligence with the factor of initial standing held constant? The partial correlations between gain and intelligence with initial standing held constant are shown in Table II. In all but one case the partial correlations are higher positive values than their corresponding zero

TABLE II

ZERO ORDER CORRELATIONS AND THE PARTIAL CORRELATIONS OBTAINED WITH INITIAL STANDING HELD CONSTANT BETWEEN GAIN AND INTELLIGENCE

Subject Area	Experimental			Control		
	r_{ig}	$r_{ig.s}$	N	r_{ig}	$r_{ig.s}$	N
American History						
Standardized test	.269	.271	245	.213	.323	105
Film test	.292	.219	245	.204	.333	105
World History						
Standardized test	.223	.329	415	.359	.480	181
Film test	.112	.178	415	.296	.404	181
General Science						
Standardized test	.212	.300	207	.325	.393	150
Film test	.170	.316	207	.143	.191	150

This table may be interpreted thus: The zero order correlation (r_{ig}) between intelligence and gain on the American History standardized test is .269; for the partial correlation with initial standing held constant, ($r_{ig.s}$) it is .271.

order correlations, thus providing one additional bit of evidence that the use of gain as a measure of individual performance handicaps the brighter students.

The second question considered brought into focus the qualitative aspect of the gains established by students on the several tests. The following procedure was employed in order to obtain some measure of qualitative differences. The order of difficulty was determined for all test items and the items were assigned a weighted value thru use of a method described by Garrett (1: 168–70). A biserial correlation was also obtained between intelligence and gain on individual items in each test. If the hypothesis that bright students established their gains on more difficult items were true, then higher positive biserial r's should be obtained on the difficult items. Space limitations do not permit publication

TABLE III

ZERO ORDER r's BETWEEN DIFFICULTY VALUE AND r_{bis} FOR INDIVIDUAL TEST ITEMS AND TESTS OF SIGNIFICANCE OF THE DIFFERENCES OBTAINED BETWEEN EXPERIMENTAL AND CONTROL SECTIONS

Subject Areas	Basic Data			Test of Significance		
	r	z	N	$z_E - z_C$	$\sigma z_E - z_C$	$\frac{z_E - z_C}{\sigma z_E - z_C}$
American History						
Experimental Group						
Standardized test	.519	.5749	245	.5018	.118	4.25[a]
Film test	.584	.6670	245	.3376	.118	2.86[a]
Control Group						
Standardized test	.073	.0731	105			
Film test	.318	.3294	105			
World History						
Experimental Group						
Standardized test	.273	.2801	415	.0774	.089	.86
Film test	.369	.3873	415	.0833	.089	.94
Control Group						
Standardized test	.200	.2027	181			
Film test	.295	.3040	181			
General Science						
Experimental Group						
Standardized test	.488	.5334	207	.2217	.108	2.05[b]
Film test	.380	.4001	207	.3058	.108	2.83[a]
Control Group						
Standardized test	.302	.3117	150			
Film test	.094	.0943	150			

[a] Significant at 1% level.
[b] Significant at 5% level.

The table may be interpreted thus: The correlation between the difficulty value and the r_{bis} for the test items was .519 for the experimental section in American History on the standardized test. This is equivalent to a z value of .5749. There were 245 students in the sample. The difference in z values of experimental and control sections was .5018. The standard error of the difference is .118. The difference divided by the standard error is 4.25.

of the table showing the 1066 separate biserial r's obtained between intelligence and gain on all items in all tests. However, positive biserial r's tended to be associated with the more difficult items.[1]

A measure of the extent to which this association existed was determined by computing a zero order r between the weighted difficulty value and the biserial r obtained from each item. The values obtained for the 12 tests are shown in Table III.

[1] Copies of this table may be obtained from the writer on request.

An unexpected finding as a result of the analyses represented in Table III was the systematic differences found between the experimental and the control sections. By use of the z-transformation, three of the differences were determined to be significant at the 1 percent level of confidence, one at the 5 percent level and two did not approach significance. The correlations obtained for the experimental sections were higher in every case than the correlations obtained for the corresponding control sections. It might have been anticipated that marked differences would exist for the film tests, but statistically significant differences on two of the three standardized tests involved is another matter. Apparently, success on difficult test items on both film and standardized tests is facilitated by the use of films more for bright students than for dull students.

The correlations obtained would have been much higher had it not been for the tendency of many of the first few items in order of difficulty to show negative biserial correlations. It is probable that these items were defective and that the random responses of low ability students were more likely to be correct responses than the considered responses of high ability students. However, no evidence on this point is presented here. Irrespective of this possibility, the evidence presented appears reasonably conclusive that the quality of gain, in terms of the difficulty of the items on which gain was established, is positively associated with intelligence.

Summary and Conclusion

The basic questions involved in this investigation were the effect of initial standing and item difficulty on the gain established on final over initial measures in achievement testing. The hypotheses were advanced that the use of gain discriminated against bright students on two counts; first, by limiting possibility for gain and second, that equal gains might really represent different levels of performance. It has been shown that the use of a measure of achievement, the effectiveness index, which is independent of initial standing, shows a higher positive correlation with intelligence than the correlation obtained between gain and intelligence. The use of partial correlation to hold the factor of initial standing constant raised the relation found between gain and intelligence in 11 out of 12 cases, indicating that the higher initial standing of brighter students tended to limit their performance. Further, it has been shown that the gain of bright students tends to be established on more difficult items. In addition, the film apparently facilitated the success of students with above average intelligence on difficult items since the relationship found between intelligence and gain or nongain on test items was markedly higher in experimental than in control sections.

To the extent that the gains made on the tests employed in this investigation are representative of gains made on achievement tests in general, in pretest and posttest situations, it may be concluded that bright students are discriminated against when gain is the measure of performance. The bright students must overcome the twin difficulties of establishing their gain on more difficult items in competition with students who have *more* items on which improvement, i.e., gain, may be established. It is obvious that groups and individuals differing widely in their initial performance on tests should not be compared using gain as a criterion unless there is some compensation for these factors.

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BOOK REVIEWS

EDITORIAL NOTE: *These two book reviews and replies represent significant contributions to our understanding of some of the issues that exist in a-v communication research and emphasize the differences of opinion (as well as points of agreement) held by protagonists of conflicting points of view.*

The Hoban-van Ormer Report has been recognized as the only comprehensive treatment of film research extant and deserves the penetrating critical review that Dr. Lumsdaine has given it. The authors, however, take issue with the reviewer and analyze the bases of his objections. The review and the reply together raise questions that will certainly need further clarification. For example, the editor would like to see a more complete discussion on: (a) the alleged inadequacy of early a-v research, (b) the comparison of the effectiveness of the various media, (c) the use of appropriate alternative instructional activities in a-v communication research, (d) the problem of generalization from the data, (e) the problem of statistical reliability of results, (f) Hoban and van Ormer's "principles of film influence," (g) the appropriateness of the concept "audience involvement," and (h) the hypothesis of "relevant cues" to learning. It is hoped that this review and reply will result in the more detailed airing of some of the intricacies of communication research, thus furnishing the reader with new perspectives on both the results of the research and the methodologies involved.

The reply of Dr. Gibson to Dr. Norberg's review of his book and to an earlier article in this journal points up an entirely different kind of problem. Here we find two men representing two opposing theories of visual perception. The chasm separating these differing viewpoints appears to be much more serious and fundamental than the differences of opinion voiced in the first review. They appear to be irreconcilable. Because of this conflict and because of the importance of visual perception in a-v communication, further debate on the problem is definitely in order, and such further comments will be solicited by the editor.

The editor is convinced that such exchange of opinion as is taking place in these reviews and comments represents a sign of maturity and professionalization of the a-v communication field, and the policy of simultaneous publication of controversial and critical articles with comments by competent respondents will be continued. —WHA

HOBAN, CHARLES F., and VAN ORMER, EDWARD B. *Instructional Film Research 1918–1950.* Instructional Film Research Program. The Pennsylvania State College. Technical Report No. SDC 269-7-19. Port Washington, L. I., New York: Special Devices Center, 1950.

Reviewed by

● A. A. LUMSDAINE

This report (subtitled "Rapid Mass Learning" by the publisher) was prepared by Hoban and van Ormer as part of the work of the Pennsylvania State College Instructional Film Research Program, under contract with the USN Special Devices Center. The title page bears a December 1950 date line, altho the book was not available for distribution until around the beginning of 1952.

The report fills a long-standing need for an integrated summary of the diverse and widely scattered research studies on the educational and instructional effects of motion pictures that have appeared during the 30 years which it covers. In spite of many shortcomings, it will probably stand for a long time to come as the standard historical summary of the film research literature for the first half of the 20th century, and accordingly it appears to be deserving of rather detailed critical examination. For this reason and because of the diversity and relative inaccessibility of some of the primary source material, it is reviewed here at more length than would be warranted for most of the contemporary literature of audio-visual research.

As a secondary source of research literature, the value of the material in Hoban and van Ormer's book must, in the nature of the case, depend in considerable part on factors over which the authors had no control—viz. the scope and quality of the source materials on which they had to draw. Unfortunately, much of this literature makes no permanent contribution to audio-visual science; some of it is wholly incompetent, and relatively little of it (particularly prior to 1945) is even worth reading in the original. However, this very fact increases the need for a comprehensive secondary-source summary, and emphasizes the value of Hoban and van Ormer's contribution in bringing together and summarizing this literature. They have thereby provided the serious student of audio-visual science with easy access to a record of what has been done in

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educational film research, and a perusal of their account will suffice to tell the experimentally sophisticated student that reference to original sources for a great many of the studies reported will be a waste of his time.

The book is organized topically rather than chronologically. An admirable introductory chapter serves to indicate the authors' purpose and approach, and sets forth some pertinent research perspectives. A brief second chapter is devoted to a useful resumé of major organized programs of film research which have contributed a large share of the research data reviewed in the book. This is followed by three chapters in each of which the focus is the elementary question, "How well can films teach?" Chapter III reviews the evidence that films can, sure enough, impart factual information; Chapter IV performs a useful service in summarizing the evidence, some of it dubious, but enough of it convincing enough to make the case, documenting the less widely recognized fact that demonstrational films can improve the learning of perceptual-motor skills. A partial exception to the evaluative nonanalytic character of the material in Chapters III, IV, and V, is one section of a few pages in Chapter IV (p. 4–6[1] thru 4–8) dealing with effects of practice and verbalization in motor skill learning. In Chapter V the available evidence is reviewed concerning the extent to which films can influence motivation, attitudes and opinions—the distinction among which categories is fuzzy in Hoban and van Ormer's chapter as it is more generally in the literature of social psychology. (Cf. McNemar's 1946 *Psychological Bulletin* article, which the reader would do well to peruse before reading this chapter.)

Chapter VI deals with comparisons between the comparative instructional effects produced by films and by alternative media, and Chapter VII with the interaction between film effects and demographic characteristics of the audience members. The meat of the book, from the standpoint of scientific research on factors governing the effective design and use of instructional films, is mostly in Chapter VIII. The amount of space devoted to these studies—which, together perhaps with part of the material on audience variables in Chapter VII, forms the core of evidence that may contribute to the building of a science of audio-visual communication—is relatively small. This fact is not necessarily a basis for criticism of the authors' work, given that the task set is a review of all pertinent research in the instructional film area, but is rather a criticism of much of the research which has been done in the field. In the foreword to the book, it is stated that "Many of the studies contained herein admittedly fail to meet the highest standards of research design" but that "They are, nevertheless, included, since no better information is avail-

[1]Page 6 of Chapter 4 (within chapter pagination is used thruout the book).

able at this date." The reviewer concurs in the desirability, in a book of this kind, of including all pertinent research, even tho the evidence it affords is imperfect. But he would stress the need for the major imperfections to be made explicit, so that the information presented does not turn out to have the effect of misinformation. With this point of view the authors would evidently agree in principle, tho there is room for difference of opinion as to whether they have always implemented it adequately. The reviewer's belief is that Hoban and van Ormer would have done well to be more critical in such instances, even at the expense of reducing by 50 percent or more the number of "findings" reported as deserving the reader's confidence, but with the advantage that a larger proportion of "findings" reported would be those that may continue to hold water. The majority of his specific criticisms reflect this point of view.

To mention three outstanding examples, "findings" from reportorial studies where subjects report their own reaction are sometimes presented, without *explicit* recognition of their vastly different status as evidence, right along with carefully controlled experiments; results of correlational studies are treated as if they were experimental in nature; and the non-experimental nature of comparisons between media (especially in Chapter VII) is not sufficiently stressed in relation to particular studies. For these reasons the reviewer believes that the reader who is looking for dependable conclusions (not just a survey of what research has been done) will have to be on his guard. Anyone who is actively concerned with research on the effects of films, TV, or related media should certainly read Hoban and van Ormer's book, and have it on his reference shelf. But he should don his critical specs and proceed with caution if he wants to obtain an accurate idea of the status of the evidence available on many of the topics discussed.

Chapter VI is devoted to comparison of films versus other media. As has been pointed out by the reviewer and his colleagues (Hovland, Lumsdaine, and Sheffield, *Experiments on Mass Communication*, p. 121) such comparisons are generally lacking in validity as a basis for generalizable conclusions about the relative value of two media. In point of historical fact, comparisons between films and a particular alternative medium have in some instances favored films and in other instances the alternative. This is recognized by Hoban and van Ormer (for example, in the statement that "Lest the reader may assume that learning from films is always more effective than from other media, a number of studies with contrary findings are reported and analyzed in some detail in that chapter"). In the reviewer's opinion, however, the inherent limitations of cross-media comparisons are not sufficiently recognized either in terms of general statements or in presenting the results of specific studies of this type. The average reader will, he feels, be left with the impression,

in reading results or "findings" of some of the studies, that more has been established concerning the relative merits of films and other media than in fact has been or can be established.

A related defect is the failure to distinguish between studies that are actually experimental and those of which the evidence is only of a correlational nature. An example is found on page 4–8, where results of a study by Ruger are reported to show that the "most skillful learners... did a large part of this 'manipulating' verbally...." This is characterized as documenting the "importance of verbalization in the solving of certain perceptual-motor problems" (p. 4–8), altho it merely shows a correlation between verbalization and problem solving.

The book's lack of an index is a considerable impediment to its efficient use as a source of information when used as a secondary-source reference book. The list of references does not substitute for an author index since it is not referenced to indicate the pages where references are cited. Similarly, the lack of a subject index is hardly offset by the detailed table of contents (which breaks down most of the chapter headings into a number of sub-topics) particularly since the categories of research used are far from unequivocal. In various instances the same factors (and indeed the same experimental data) are presented under two separate headings in separate places; likewise the same term is used in two different places with an entirely different meaning. In either of the two ways in which one generally uses such a reference book—either for looking up, under a particular topic or problem, what has been done on that subject, or for looking up a particular study or set of studies to which one has a lead from other sources—one will have need of a lot of patience, with Hoban and van Ormer's book, for thumbing thru page after page in search of a needle that may turn out not to be in the haystack after all. For the student having initial familiarity with the literature, an author index would be especially helpful, and is so easy to prepare that it is hard to see why it was not included.[2]

Criticisms of the substantive content of the book must be made in the light of the authors' purposes in writing it. A statement of the mission of the book is given by the authors in their introductory chapter (p. 1–1):

> From an educational point of view, it is important to know what kind of research has been conducted on the effectiveness of the projected picture and sound in promoting learning, what valid conclusions can be derived from the mass of accumulated research data, and which of the prevalent beliefs about the effectiveness of motion pictures are supported by controlled observations and empirical data.

[2]Since the writing of this review, it has been called to the reviewer's attention that a subject index has been prepared and issued separately (See p. 189).

With the need for providing this information no one can disagree, and in many respects the authors have done not only a needed job but an admirable piece of work. The points with which the reviewer would take issue in a number of instances hinge on the word "valid" and the word "derive" in the preceding quotation. "Derive" is used as something of a weasel word; it may suggest either conclusions following rather directly from the results of experiments, or (as is sometimes the case) may refer to ideas barely suggested by the data or even suggested only by the problem attacked and nature of the study. Obviously ideas may be of value whatever their source. But the point here is that if research is to make any contribution not provided by sagacity and inspired guesses, this contribution is properly represented only if ideas merely suggested by a piece of research are kept separate from the findings which the data actually document. In principle the authors would perhaps endorse this point of view; but in practice they have often blurred the distinction.

Contrasting both with their frequent uncritical practice and with the avowed critical intent is a sort of pseudo-caution achieved by linguistic devices familiar to all critical readers of the literature of the social sciences. For example, the authors occasionally hedge (appropriately) their conclusions with the term "may"—for example (p. 4-5), "Films May Help Solve...." The use of this caution is not consistent, however, and in some instances in which the evidence is most fragile or suspect a bold statement of findings is given without qualification—for example, on the same page (based on nonquantitative impressions without supporting quantitative data) the result is summarized in the caption, "Film Increased Teamwork and Efficiency," and in spite of the statement that related quantitative measures were "quite unreliable." Altho this caption may be the work of the editor rather than the authors, it illustrates what the reviewer believes is an unfortunate tendency which recurs thruout the book—namely, lack of consistent correlation between the definiteness with which conclusions are stated and the conclusiveness of the data which are adduced in support of them.

The authors stress in several places in the book the point of view that the demonstrated contributions of films to learning tend to be "specific rather than general." Altho the evidence in support of this position is far from conclusive and altho the definition of what is "specific" is a very loose one, the reviewer would agree that in the light of the available evidence and of prevailing expectations about film effects this emphasis is generally warranted and desirable. However, in connection with this point, as in a number of other instances, the inconsistency and lack of clarity of statements achieved by the authors may disconcert the reader. For example, on page 3-10, we read that "specific information contained in the film contributes almost entirely to the specific informa-

tion of the individual, and little to his general information." In the very next paragraph, however, we read that "Research does not bear out the notion that film learning is passive, at least not to the extent that instructional films impede the *application of what is learned to somewhat different, and in a sense, new situations.*" (Italics are the reviewer's.) That the transfer of learning implied in the second statement appears to contradict the "specificity" of learning implied by the first serves to illustrate the at least apparent inconsistency which frequently arises in this and other discussions of communication and educational processes and may, again, be characterized as less the fault of the authors than it is symptomatic of the rudimentary state of conceptualization with which students of communication science are plagued—a state characterized by semantic vagueness in which several terms are used to comprehend what will probably turn out to be identical processes and, conversely, where a particular term is used with a variety of different and not sharply distinguished meanings.

The authors state that "There has been a general increase in the rigor of experimental design and statistical analysis in film research during the past 10 years which, at least in part, reflects a somewhat general trend in psychological and educational research" (p. 8–1). This statement is true enough, but one has to read between the lines: it should not be assumed that the "general increase" (either in film research or, more generally, in psychological and educational research) is more than a trend, and one which still leaves current studies being conducted and reported which have gross shortcomings in the methodology employed. This does not mean simply that we do not have ideal methods available; it means that known improvements or precautions of a methodological sort are frequently ignored or not adequately complied with.

Either the editor or the authors have attempted to use a uniform system of captions in labeling the several sections of presentation for most studies. Thus, under many studies one finds the headings "Experimental Design," "Findings," and "Evaluation." Various alternative and supplementary headings, including sentence captions purporting to summarize the conclusions, are also used rather freely. While these are undoubted aids to comprehension of what is being said, the uniform headings frequently do not fit. For example, in some instances "Findings" is used to head a section in which quantitative results are reported, but in other instances is used to summarize what are mere suggestions stimulated by the study. Thus on page 7–2 we find the heading "Findings" followed by the lead caption "Opinion Change Depends on Acceptance." What follows is a quotation from Hovland, Lumsdaine, and Sheffield's book which is in no sense a "finding," but merely a conjecture concerning factors that would be expected to influence opinion change.

Some common methodological flaws in studies not always pointed out by the authors, and which impair or destroy the validity of conclusions that authors of primary sources have drawn and Hoban and van Ormer have passed on to the reader of their book, include the following:

1. No control group, and/or no prefilm measurement, in instances where such a control is needed to support the conclusions.

2. No statistical evaluation of reliability—or, an irrelevant or invalid test was used—e.g., significance of before-after gain was reported for an experimental group when the appropriate test required was a test of the *difference* between gains for two groups.

3. When a statistical test of reliability (or "significance") is given, details are sometimes too sparse to evaluate its validity. This, as a matter of fact, sometimes applies to the data given in the primary sources, so that Hoban and van Ormer had no choice in the matter, except that they might sometimes have noted the fact instead of appearing to accept dubious probability levels at face value.

4. Despite lack of evidence of statistical reliability and/or of errors of the kinds indicated in *1*, *2*, or *3* above, the authors of some of the primary sources reviewed go right ahead and draw conclusions that are not supported by the data—with Hoban and van Ormer, in some instances, following suit in such a way as to suggest that they do not take the requirements of statistical tests too seriously. An example of the logical inconsistency suggested in 4, above, occurs on page 4-2, where the authors state under the "findings" of one study, that "In both cases, the teacher-demonstration was superior to all other methods"; yet they go on to state that "No measures of statistical reliability of differences were reported, so that the practical significance of the differences among methods cannot be estimated." While a good lawyer could defend the position that these two statements are not incompatible, it would appear to the reviewer that the impression gained from the first statement by most readers would be that real superiority was demonstrated; actually, the authors may merely have intended to state that the obtained means were higher, but the phrase "was superior to" certainly suggests that this is a dependable finding rather than one which may, as far as can be told from the evidence, be merely chance.

In comparison with the rest of the book, Chapter VIII provides considerable material of permanent scientific significance. The presentation is, however, far from free of serious defects. The initial (and longest) section of this key chapter surveys the evidence in relation to what are termed "audience involvement factors." Six so-called "factors" are grouped under this major heading: (a) identification, (b) familiarity, (c) subjective camera, (d) anticipation, (e) participation, and (f) "dramatic structure and cartoon form" [sic]. These are said to be "factors which

affect the degree to which the audience is involved in a film presentation." Aside from the question of the propriety of terming these six as "factors," the contribution made by relating them to the undefined and unmeasured entity of "involvement" is of questionable value. It may be further noted that doing so begs the question of whether the allegedly resulting "involvement" contributes to the effectiveness of instruction. Some of the procedures subsequently identified in terms of one or more of the factors are thus related; in the opinion of the reviewer, however, this relationship is not demonstrably clarified by the use of the intervening concept of involvement.

Under the heading "subjective camera" (p. 8–8) the authors make an excellent if largely undocumented point in connection with realism: "The problem of communication via motion pictures and 'still' pictures is not to represent exactly every sensory element in the situation portrayed, but to select the *relevant cues* to reaction and to faithfully represent these relevant cues in picture and/or sound." However, the catch here, as in the practical application of much learning theory, is to determine what *are* the relevant cues—and to this problem the authors give little explicit attention. Under this same topic, the authors also review uncritically some evidence by Jaspen which spuriously purports to support the plausible hypothesis that (under conditions which remain to be specified—the main, and ignored problem) depiction of errors can help demonstrational learning. The catch in the evidence presented, not noted by the authors, is that in the study (Jaspen's) the showing of errors was added to other demonstration rather than serving as an alternative to it—whereas the real question is whether it is better to spend part of the demonstrational time depicting errors or all of it in showing correct procedure. The grouping of "depicting errors" as an aspect of "subjective camera" will seem to some readers as something of a tour de force, as will also the listing under this heading of the section entitled "Technical Nomenclature May Not Aid Learning."

An instance of the discrepancy between the evidence and conclusions drawn is found in a later section on "visual and auditory channels." Results of a rather naively conceived comparison in which a sound film was shown with and without sound track and the track played to other groups without the visual showed more information communicated by sound for one of the two films tested, and by the visual for the other (p. 8–20). On page 8–23 the authors wisely conclude that "the question of visual versus auditory primacy is still far from being settled." Yet, later, on page 9–14 we are presented with a "principle of visual primacy" which states that "the influence of a motion picture is primarily in the strength of the visual presentation, and secondarily in the narration or commentary."

In general, Chapter IX is, in the reviewer's opinion, the weakest in the book. Entitled "Principles of Film Influence," it parallels an earlier separately published report from the Pennsylvania State College film research program which the reviewer has previously vigorously criticized. The chapter has two parts: Part I is entitled "Values of Instructional Films" and contains five statements of value that are largely innocuous, if in some instances vague and platitudinous. Part II sets forth "Principles Governing the Influence of Films." In some instances this chapter presents what the reviewer believes to be sage or at least sound advice; that is, he believes that some points of this advice would, if taken seriously in training-film production, quite likely result in better and more effective films.

But the point remains that even those items of advice that may be warranted, important, and fairly unambiguous are not in fact "findings" of research and belong, if anywhere, in a handbook for film producers, not in a summary of research evidence. In fact, the "principles" stated are not even principles, but a loose collection of statements some of which are trivial or tautological, some of which (insofar as their meaning can be perceived from the looseness with which they are stated) are false, or at least dubious and misleading, and others of which may represent good advice but either don't follow from the evidence or would have to be more fully spelled out before they would be useful.

As another form of the kinds of objection to which the "principles" of Chapter IX are open, some readers will point out that what is termed the "principle of reinforcement" does not correspond to any accepted usage of the term in contemporary learning theory. It is rather a blanket term used to subsume statements about propitious prior attitudes (the film should "reinforce" these), aptitude for learning, and the need for supplementary materials to support ("reinforce") the presentation contained in given film.

Since Hoban and van Ormer's book is one which is "must" reading for any serious student of film research, the purpose of this long review has been not primarily to "evaluate" the book, but rather, in addition to describing it, to provide what the reviewer hopes will be a useful guide and adjunct to its use. To do a complete job here would be to edit the book, or at least annotate it, rather than merely to review it; consequently the reviewer has necessarily confined himself to presenting examples rather than to comprehensive coverage or analysis. By no means all of the statements he finds objectionable are noted here, and certainly only a few of the book's good points have been explicitly listed.

In summary, it can be said that what Hoban and van Ormer's book provides is most valuable as a narrative account of what has been done in educational film research. With an index, it would be a useful sec-

ondary reference source. If used by a sophisticated instructor with considerable critical supplementation and in conjunction with other references, including some primary sources, it would serve rather well as a textbook for a basic course in research on the science of film or audio-visual instruction. If read as an analysis of the status of evidence in the field, let the reader beware. The least satisfactory use of the book would, in the reviewer's opinion, be that of providing useful research-tested guidance to film producers and script writers. For this weakness the authors should by no means be charged with sole responsibility—tho the reviewer obviously feels they are in some instances chargeable as accessories after the fact in not reporting more critically—since the weakness here lies as much if not more in what there was to report rather than in how it has been reported.

On the whole, the reviewer feels that the book makes a highly valuable contribution and that the authors are to be applauded for persevering in what must necessarily have been a discouraging, wearisome, and frustrating chore. If he has appeared to stress the defects of the volume rather more than its merits, this is because he believes that the function of a critical review is best served if the review is in fact a critical one, and that the reviewer can afford to dissect out and report the weaknesses of a book while not detracting from its merits. The latter can perhaps speak for themselves; in any event, no amount of criticism will displace this book from its position as the only comprehensive treatment extant in its field.

THE AUTHORS REVIEW THE REVIEW

● CHARLES F. HOBAN

● EDWARD B. VAN ORMER

Critical review of research and of research summaries has an essential place in any science, young or old. The obligation of the critic is not simply to be critical, but to be balanced in his criticism. We think that the broad, balanced perspective required in criticism is lacking in Dr. Lumsdaine's critical review of *Instructional Film Research 1918–1950,* altho the reviewer evidently devoted considerable time and effort in his attempt, and did introduce some valid criticism.

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In reading Dr. Lumsdaine's review, we cannot escape the feeling that we have been damned when we do and damned when we don't. On the one hand, our reviewer blames us for going beyond the data, and on the other hand, he holds us responsible for not having clear insights on conceptual constructs not clearly defined in the systematic literature nor well documented by research results, even in 1953. Thus, we failed to "clarify" the data with the "intervening concept" of involvement, where we admittedly went beyond the data; and, our "distinction among the categories" of motivation, attitudes, and opinions is "fuzzy," where we stuck closely to the experimental data and to McNemar's critical review of the literature on this subject. We are scolded for not emphasizing the conditional nature of research data, and then we are accused of using "a sort of pseudo-caution achieved by linguistic devices" when we do. Our reviewer applauds us in one breath for our systematic discussion of the problem of crucial cues, and in the next breath he seems displeased that we did not produce research data on the problem we were among the first to define, etc., etc.

Thruout most of the review, Dr. Lumsdaine seems to shuttle back and forth in his disapproval between the research summarized in *Instructional Film Research 1918-1950* and the way we dealt with the critical summary of this research. He is careful, in a left-handed way, to distinguish between these two, but he effectively projects the very black halo of his disapproval of many film research studies onto our summary of these studies.

The production of *Instructional Film Research 1918-1950* was literally a combined operation. Many people participated, both in preparing systematic abstracts of the various research studies, and in the careful and helpful reading and editing of the manuscript. Among these were C. R. Carpenter, A. A. Lumsdaine, L. P. Greenhill, Mary Catherine Welch, A. W. VanderMeer, E. P. McCoy, and others. Jackson and Moreland of Boston did the final revising of the manuscript, inserting captions and subheads according to a format suggested by the contracting agency, and prepared the mats for publication. We acknowledged the work of these individuals in our authors' foreword, and again we express our deep appreciation for their patient and valuable assistance in the formidable task of preparing and publishing the critical summary of film research. All of us made an honest attempt to produce a useful document.

At the root of many of the reviewer's objections and criticisms of *Instructional Film Research 1918-1950* are, we believe, two philosophic postures with which we disagree. The first is an emphasis on the empirical aspects of scientific development which, to our mind, is not only extreme but also excessive. The second is an emphasis on the finality

of any formulation, however stated, of postulates, hypotheses, or principles which we believe to be inconsistent with the view of modern science that such formulations are tentatively set forth, subject always to later revision.

Thruout most of his review, Dr. Lumsdaine is not discussing audio-visual science, as he may think he is, but empiricism in film research. Advances in any science come from the coordinate development of new theories and empirical findings, and not from the mere accretion of empirical data or not from theory alone. When we understand the reviewer's extreme position on empiricism, and on the "empirical improvement of empiricism," the rationale of many of his criticisms becomes clear and consistent, altho it leads to extreme and, as we believe, unwarranted conclusions.

We did not neglect the empirical side of research on instructional films—far from it. We computed seemingly endless mean differences, standard deviations, critical ratios, *t* values, and confidence levels on other researchers' data where such computations were not reported, and where the original tabulations were. There are cookbook methods for doing this, and we used them. However, we did not dramatize them altho we generally reported the results of our independent computations. If, however, you take an extreme position on the empirical side of scientific research, it is understandable but not justifiable that you will read into discussions of data some implications on the certainty of research findings which the writers not only did not introduce, but took care to avoid.

The untenable consequence of excessive emphasis on empiricism in science is, we believe, illustrated by the following quotation from Dr. Lumsdaine's review: "Unfortunately, much of this literature makes no contribution to audio-visual science; some of it is wholly incompetent, and relatively little of it (particularly prior to 1945) is worth reading in the original." While there is some truth in this conclusion, there is also considerable misrepresentation and poor judgment of the facts.

To mention only a few of the pre-1945 research studies eminently worth reading in the original—The Commonwealth Studies (1924) contributed greatly to our ordered information in film effects. Shuttleworth and May's (1933) study of general attitude effects of entertainment films is classic, not the least value of which is in their systematic discussion of the dynamics of communication involved in the data they reported. Rulon's (1933) study of levels of intellectual response to films is conceptually far in advance of much of the later research, and Ramseyer's (1938) doctoral study opened up areas of film influence to our consideration that were previously and subsequently ignored or unsuspected. Lashley and Watson's (1922) study of the effects of an orientation film

on information and conduct is well worth examination in the original, and has stood up well under the test of post-1945 reports of research in the effects of films. All these studies contributed both to our ordered information and to theoretical constructs, without which there is no science—only cookbook recipes.

Excessive emphasis on cookbook recipes doesn't get us very far in either pure or applied aspects of audio-visual science or any other science. There is no mass production of motion pictures, only of prints of motion pictures. Film producers are creative artists, not cooks. The need, as we see it, is not for recipes for film-making, but for broad theories of the dynamics of film communication, so formulated that they can be understood and applied by creative producers and users of films, as well as by research scientists, and by high-policy decision-makers.

The second philosophic posture of the reviewer with which we disagree is his view of formulations of postulates, hypotheses, and principles as if these were creeds to be defended and preserved, rather than policies to be followed only until better policies are developed. This posture on the finality of formulation leads Dr. Lumsdaine to say that "the 'principles' of film influence stated are not even principles," that some of them "are false, or at least dubious and misleading" as loosely stated, and that many of the "items of advice that may be warranted... belong, if anywhere, in a handbook for film producers, not in a summary of research evidence."

In the sense that a principle is a rule or a summary for a body of data, the principles of film influence are principles. We made it clear, or so we thought, that these principles were stated as tentative generalizations. Some of them are more substantially supported by the research evidence than others, but to the best of our knowledge and belief, none of them are unacceptable.

It is, we believe, in the best tradition of modern science to regard formulated principles more as policies than as creeds, and to assume that these policies will undergo unceasing change or reformulation, as new and relevant information is developed. With St. Paul, now we see thru a mirror darkly.

Within this tradition, the sharp line of separation between the research scientist and the practical worker in the applied field is broken down, and the two are regarded as complementary, rather than as having disparate and even conflicting interests.

When the philosophic postures which, it seems to us, have been assumed by the reviewer are clearly evident, both the reviewer's criticisms and the equally, if not more defensible procedures of the authors in their critical summary of the film research literature are seen as understand-

able and legitimate. The criticisms that we failed to recognize status differences in the data, that we blurred the distinction between data which "suggest" and data which "demonstrate," that we should have been more critical in our analysis and more explicit in recognition of weaknesses in research studies, and the like, all seem, at least to us, to flow from *excessive* emphasis on empiricism.

We think Dr. Lumsdaine lacks historical perspective in making many of his criticisms, that, in effect, he blames early researchers for not being sophisticated in 1953 research methodology. We were not, we hasten to add, writing a textbook on film research methodology when we prepared the critical summary of instructional film research.

On the other hand, some of Dr. Lumsdaine's criticisms are valid. The subheads are occasionally too journalistic (in the attempt to preserve reader orientation in the lengthy and sub-subdivided chapters). We did not handle the problem of generalization to our complete satisfaction, nor do we know of anyone who has clarified this problem to his own or to our satisfaction. The problem of alternative instructional procedures is an important one, not limited to a fragment of Dr. Jaspen's experimental design. And lack of an author index was a serious impediment to the usefulness of the research summary, quickly corrected by the Instructional Film Research Program, Pennsylvania State College, State College, Pa., with the compilation, publication, and distribution of an author-index immediately after the research summary was published. If you have not received your copy, write for it. The need for a better topical index still exists and we welcome the help of anyone who undertakes this laborious task.

In closing our review of Dr. Lumsdaine's review, we invite attention to the fact that we requested the assistance of all readers in noting any errors, misstatements, misrepresentations and other blemishes that inevitably creep into a combined and prolonged operation such as that of compiling and publishing *Instructional Film Research 1918–1950*. To date we have received no direct replies. We again invite wide participation in this important project so that in any revision of the original publication, or in a probable supplement bringing it up to date, the product will more closely approximate the errorless perfection that everyone wants, but is so difficult to achieve.

GIBSON, JAMES J. *The Perception of the Visual World.* Boston: Houghton Mifflin Company, 1950. p. 235.

KILPATRICK, FRANKLIN P., Editor. *Human Behavior from the Transactional Point of View.* Hanover, N. H.: Institute for Associated Research, 1952. p. 259.

Reviewed by

● KENNETH NORBERG

The Perception of the Visual World is described by the author as "a book about how we see—" also as "primarily a book about objects." A still more pointed characterization is given in the first sentence of the preface: "The principal subject of this book is the visual perception of space." To distinguish a "visual world" of surfaces and edges from more complicated forms of experience Gibson draws a distinction between "literal perception" and the "perception of the world of useful and significant things to which we ordinarily attend." The latter, which he calls "schematic perception," has to do with the meaningful world in which perception is "selective, creative, fleeting, inexact, generalized, stereotyped—" which characteristics are noted in the same paragraph as "defects." In order to understand such "defects" we must first understand how perception can be objective and exact. A corresponding statement of the problem is given at another point: "The discrepancies between percepts and objects are not difficult to understand; what we need to understand is why there are so *few* discrepancies. That is the real mystery and the really important problem."

Gibson does not deny the importance of what he calls "schematic perception." He even goes so far as to suggest that the real study of perception ("in a sense") begins where the study of "literal perception" leaves off, but it is made clear that we must study the fundamentals first, and that this primary investigation is not to be complicated or confused by those factors which have been excluded deliberately from what he calls the visual perception of space. By implication it would seem that perceptions of meaningful objects of concern and use are built up additively on the foundation of a visual world of extended forms which can be explained in advance of other meanings which may accrue to them in time. "Before one can fully understand schematic perception one must understand literal perception since it provides the fundamental repertory of impressions for all experience." Accordingly, Gibson addresses himself to the initial task which is to understand "literal perception."

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The "literal perception" of space is described as essentially a reliable form of experience of a world in which objects generally correspond with our visual impressions of them. Our "visual world" is also one in which objects demonstrate certain constancies of appearance despite changes in the retinal image and/or the position of the observer. These and certain other characteristics of the "visual world" are developed as central problems in the context of a theory which relies almost exclusively on retinal stimulation as a basis for explaining perception.

The "psychophysical" theory advanced in behalf of Gibson's visual world of space is that proper analysis of patterns of retinal stimulation is sufficient to account for the experienced spatial properties of objects, including depth. The retinal image is not a direct copy of the object; it is constantly changing in its position on the retina, in size, and shape. How then, can we account for the fact that our literal perceptions of space are objective and reliable, in the main? In answer to this question Gibson outlines in some detail a theory of "ordinal stimulation" in which the stimulus, defined as "light energy on the retina" can by analyzed both with respect to spatial distribution of variations in the pattern of excitation, and also with respect to the order or succession of changes in retinal stimulation. Viewing the reliability of the visual world as a central problem, Gibson devotes a major share of his attention to the task of demonstrating how the visual stimulus can be correlated with the external object. Since any such correlation cannot be explained as a simple one-to-one pictorial or copy correspondence, he proposes that the stimulus be considered as having dimensions in both space and time, and that the properties of the visual world may have their correlates in complex variables of "ordinal stimulation." It should be noted, however, that Gibson admits the dimension of time only to the extent that successive changes in retinal stimulation are held together by "immediate memory" for purposes of momentary visual experience. "Literal perception" does not require the long-term accumulation of experience that would be reflected presumably in "schematic perception." Learning is certainly not an important factor in perceiving the "visual world," if, indeed, it is a factor at all.

In similar vein, the visual stimulus is conceived as operating for the most part independently. Coordinate stimulation for visual perception enters at one point where Gibson discusses reciprocal visual-postural processes to explain how we perceive an upright visual world, but this deviation from the conception of a self-sufficient retinal stimulus operating as the basis of visual experience is not in keeping with the general approach of the book. Why reciprocal processes should be necessary to explain one facet of the visual world, and not others, does not receive more than passing mention as a problem. Gibson dismisses this as an

important question on the grounds that he intends "to concentrate on the theory of those spatial perceptions for which the determinants are supplementary to one another, not discrepant—." The assumption seems to be that nonoptical factors in visual perception merit consideration only in so far as they might affect the objectivity or reliability of our "literal" perception of space. Gibson does take up the general matter of visual processes in relationship to other forms of behavior in the final chapter, but this discussion does not affect the central structure of his theory. In this chapter he states that "spatial perception" and "spatial behavior" are coordinate, and that neither kind has to be taken as primary. The implication appears to be that motor and other forms of "spatial" behavior are somehow connected with visual perception, but that they need not be taken into account ordinarily to explain the visual world as we see it. "We have neither to see space before we can behave nor to make spatial responses before we can see." After all, Gibson seems to say, the basic and largely self-sufficient stimulus for literal perception is the "ordinal stimulation" of the retina.

In comparison with Gibson's theory of a visual world of objects in space conceived as a process based upon a highly localized physical stimulus, the theory of perception outlined in *Human Behavior from the Transactional Point of View* stands in startling contrast. The latter volume, edited by Franklin P. Kilpatrick, contains the writings of a group of men including Adelbert Ames, Jr., Hadley Cantril, P. K. Hastings, A. H. Hastorf, W. H. Ittelson, F. P. Kilpatrick, A. L. Knutson, George N. Raines, George H. Smith, and Warren J. Wittreich. This book, prepared in loose-leaf form and described as a manual, is a comprehensive report and interpretation of the experimental work of the Institute for Associated Research centering specifically in a series of demonstrations in perception developed under the leadership of Adelbert Ames, Jr.

Where the theory of Gibson looks upon perception as of two sorts, and deliberately chooses to delimit the present range of his inquiry to that sort of space perception which provides "the fundamental repertory of impressions for all experience," the theory outlined in *Human Behavior from the Transactional Point of View* insists that perception be regarded all of one piece, and also as an integral aspect of the totality of human behavior. In the latter volume the problem of perception is described as the discovery of factors involved in choosing (in the presence of retinal stimulation) that particular meaning or prognosis which is appropriate not only to the available stimulation, but also to the operating assumptions and purposes of the perceiver. The "choosing" activity which is perception is not a deliberate judgment, altho it does reflect past experience operative as an "implicit awareness" of the probable

significance for some possible or intended action of present impingements from the environment.

The term, "transaction," has central importance in the Kilpatrick volume, for the philosophic approach which has been adopted in developing this psychological theory specifically acknowledges and stresses conceptions outlined by Dewey and Bentley under the general heading of this same term.[1] It is difficult to explain the psychological consequences of a "transactional" view of perception in a few words. At one point, Kilpatrick sums up the implications as follows: "It would appear that the perceptual process is but an abstraction from a total evolving process which includes space and time and environment, as well as the organism in an indissoluble whole. Perception is that phase of the total process which is the implicit awareness of the probable consequences of purposive action with respect to some object." It is interesting and significant that this book on perception does not include the word, "perception," in the title, but finds it necessary to inquire into the total behavioral-environmental process within which perception is observed as an aspect.

The differences between the two theories outlined above are many and wide, in this reviewer's opinion. Only a few can be noted here. Where Gibson's theory postulates a definite physical stimulus as the base upon which perception rests, the other tends to avoid the use of the term, "stimulus," in the traditional sense, and even regards it with distrust. Both theories are definitely experimental in approach, and rely heavily on the available evidence (altho the Ames demonstrations are not merely experiments in the usual sense). On the other hand, the evidence cited in the two theories is characteristically different, each from the other. Gibson relies heavily on ordinary visual situations in which stimuli yield adequate or reasonably accurate impressions of the spatial properties of objects. (In fact, he tends deliberately to ignore what he regards as cases of impoverished or "inadequate" stimulation, on the grounds that rigged optical illusions are not typical of everyday visual experience.) On the other hand, the Ames demonstrations are typically rigged, and in many cases deliberately misleading, an approach which would be explained on the grounds that highly contrived conditions are sometimes required to reveal variables that would not otherwise be apparent.

The conclusions of these two significant books on perception are certainly at odds, but it is probably not precise to say that they are entirely in direct opposition. It would be more exact to say that the primary differences lie not so much in the answers, but in the questions that are

[1]Dewey, John and Bentley, Arthur F. *Knowing and the Known.* Boston: Beacon, 1949.

asked. One theory implies that a certain set of questions (those pertaining to "literal perception") must be answered before other questions about perception can be formulated adequately. The other theory, prompted and documented by the Ames demonstrations, implies that any question regarding perception is necessarily a question regarding human behavior as a whole, and that any more circumscribed approach is liable to be abortive as a line of inquiry.

VISUAL EDUCATION AND THE THEORY OF VISUAL PERCEPTION

● JAMES J. GIBSON

Dr. Norberg's review of my book in conjunction with the most recent summary of the Ames-Cantril work on visual perception points to the contrast in which they stand. It could hardly be greater. The basic assumptions of the two theories are about as contradictory as assumptions can be. Since the different theories of vision lead to different kinds of practice in visual education, the issue may be worth exploring even further. It seems to me that the Hanover Institute line of inquiry is a very poor basis on which to found a science of communication, and I should like to say why. Dr. Norberg has written a clear account of the Ames demonstrations under the title of "Perception Research and Audio-Visual Education" in the first issue of this *Review*, and his paper can serve as a point of departure.

There is nothing to be criticised in the doctrine that perception is only a part of human activity. No one doubts that men learn, and that purposes, assumptions, and expectations enter into this infinitely complex process. No one denies that the educator should try to regard human behavior as a whole. As philosophy, the idea that behavior is always a transaction with the environment probably has merit. What is objectionable are the notions about vision that have been mixed with this philosophy. The theory propounded by Dr. Hadley Cantril and his associates might fairly be called a sort of visual Christian Science. Its more enthusiastic propositions seem to imply that a child who needs glasses really only needs a new set of assumptions in order to have a new "assumptive form world." It passes over most of the patiently accumulated evidence and the closely reasoned debates of a century of work on the visual *process* and asserts that a new and global approach to the whole problem has been discovered. A genuinely global theory in any field of

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science is rare. It has to be analytical and detailed as well as comprehensive. It is not to be confused with the "everything-is-related-to-everything-else" feeling which scientists often get but are usually cautious about putting into print.

Visual educators have mostly not had time to become close students of optics, physiology, psychophysics, and experimental psychology. Some of them may even view with distaste these parts of the field of visual perception, since they make fairly laborious reading. Any theory which seems to provide a short cut to an understanding of the field may have an extra touch of plausibility on that account. A short cut which proves to be a blind alley, however, is no help and the visual educator should look over the route with caution before plunging into it.

Many of the Ames demonstrations, by now so well publicized and widely distributed, are actually arguments for a philosophical position rather than experiments contributing to knowledge. The peephole demonstrations (the "chair" and the "distorted room" for instance) are not even the compelling arguments for the doctrine of subjectivism they purport to be. (If Bishop Berkeley could come back after a quarter of a millennium, he would be delighted with them, but his argument for the idealist position would be more sophisticated.) They demonstrate first that the occasion of static monocular vision is primarily a sheaf of light-rays, a proximal stimulus, and only secondarily an object, a "distal" stimulus, and that a given sheaf of rays may come from a specific *family* of physical surfaces (perspective transformations) not necessarily from the rectangular array of surfaces common to civilization (chair or room). This is merely geometry. But a single static sheaf of rays is a thoroly impoverished optical stimulus. When the stimulus becomes the normal one, rich with parallactic variations from two eyes and a mobile head, the array of surfaces becomes uniquely determining, and the corresponding space-perception becomes veridical. In other words, if the observer is not confined to the peephole, the illusion disappears. These demonstrations suggest, in the second place, that to the extent stimulation is impoverished assumptions or normal expectations are determining for perception instead. This much of the Ames-Cantril hypothesis is valid. But even then assumptions are determining only within the limits set by the stimulus—only within the unique family of transformations of a chair or of a room. No observer has yet mistaken the one for the other. Given the right conditions of reflected light the eyes are marvelous instruments for discriminating the ins and outs of physical surfaces—and that means shapes, places, objects, people, events, machines, and social behavior.

What the visual educator needs to know is, first, how we learn by perceiving and, second, how we learn to perceive more effectively. The "assumptive world" theory of perception suggests in answer to the first

question that we cannot learn by perceiving as such since all perceiving is itself learned. We can only learn by action. In answer to the second question it suggests that we can hardly learn to perceive the world more effectively since in any event our perceptions will be dictated by our purposes. Action and purpose come first; perception follows in conformity. You can only educate a student by getting him to act or to alter his purposes. A stimulus-oriented theory of perception, on the other hand, suggests that we learn by perceiving in the sense that we see relationships not previously seen, and that we learn to perceive in the sense that we improve in the ability to discriminate among things. It focuses on discrimination, cognition, and careful observation. The visual educator, more than anyone else, ought to explore the possibilities of this second alternative. What models, pictures, and films can do is to prepare the student for situations he may have to face *before* overt action is required of him. If we cannot provide him with any prevision of his future problem-situations there is no point in education at all.

WORLD COMMUNICATIONS

• ANDRIES DEINUM

FOREIGN BOOKS

The purpose of this quarter's column is to acquaint you with several recent foreign books about the film. The following listing—the second part of what is expected to be a continuing effort in keeping you abreast of worthwhile acquisitions of University of Southern California's Farmington Cinema Collection—will limit itself to books published since 1950.

It should be noted that the entries are not critical, nor are they complete; they merely describe the publications in question and note their contents generally. They are meant to arouse your interest or curiosity. All the works selected for this column need more extensive, critical treatment, if only to winnow from them knowledge to add to our own, or insights into common problems to stimulate our own thinking in the audio-visual field. I urge readers of this periodical, professionally and linguistically better qualified than I am, to order these books from the Library of the University of Southern California under the interlibrary loan system, to give them the thoro, leisurely reading they deserve, and then to review them for us in these pages.

Aristarco, Guido, editor. *L'Arte del Film: Antologia Storico-Critica.* Milan: Bompiani, 1950. 270 p.

This is a counterpart, a complement so to say, to the author's history of film-theories, mentioned in an earlier column (Vol. I, No. 1, p. 57). This is the first anthology of some of the most valuable, theoretical statements made about the film. The book is divided into two main parts: (a) the esthetic problems, and (b) the means of expression. The chief film-theorists are represented by long excerpts: Balazs, Canudo, Dulac, Arnheim, Eisenstein, Richter, Pasinetti,

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Rotha, Delluc, Barbaro, Chiarini, Pudovkin and Spottiswoode. An appendix reprints the views on the film of three Italian philosophers: Croce, Gentile, and Tilgher, plus parts of André Malraux' *Outline of a Psychology of the Cinema.* It's a pity this anthology has no equivalent in English.

Azevedo, Manuel de. *Perspectiva do Cinema Português.* Porto: Clube Português de Cinematografia, 1951. 114 p.

A history of the film in Portugal, coupled with a consideration of the manifold problems connected with making films in a country such as this. Special attention is given to the role of the state in film production, and to the growth of the educational film. The development of the Portuguese film-industry is sketched from its beginnings in 1896 to the present day, covering a rather unknown chapter of film's history. The book ends on a typical note: all is not well. The appendix supplies the relevant statistics; it reprints the Portuguese laws concerning film; and it carries a complete filmography of sound feature films made in Portugal up to 1951.

Barbaro, Umberto, editor. *Il Cinema e l'Uomo Moderno.* Milan: Edizioni Sociali, 1950. 195 p.

Under the title *Film and Modern Man* are collected the proceedings and speeches of the International Film Convention held in Perugia, Italy, in September, 1949. Attacking the broad theme from different angles were, among many others, Cesare Zavattini, the screenwriter of *Shoesbine* and *Bicycle Thief;* Galvana della Volpe, professor of philosophy at the University of Messina; Alberto Lattuada, the Italian director; Vsevolod Pudovkin; Georges Sadoul, French film historian; and Paul Strand, the American documentary film maker. Most of the speakers appear to be much concerned with the effects of the film.

Bovay, Georges-Michel, editor. *Cinema: Un Oeil Ouvert sur le Monde.* Lausanne: La Guilde du Livre, 1952. 152 p.

A beautifully executed book concerned with various facets of the film, subtitled: "An Eye Open to the World." It consists of essays written by several of France's most considerable film scholars: Leon Moussinac, Georges Sadoul, André Bazin, Maurice Bessy, Jean Thévenot, Nicole Vedrès, and the editor. Of special interest are Bazin's plea for *un cinéma impur,* dealing with the adaptation of novels and plays to film, Thévenot's piece on the films "drawn from life," and Bovay's criticism of some new films about art, titled: *The Living Museum.* One hundred, lush, full-page illustrations add greatly to the value of this exciting book.

Centro Italiano Femminile. *Inchiesta Sulla Cinematografia per Ragazzi.* Rome, 1952. 177 p.

This is the report on an inquiry into the influence of the film on children, initiated by the Italian Women's Center. The answers to the questionnaire are printed *in toto,* including all the gratuitous suggestions offered by the various

authorities. The participants were psychiatrists, physicians, educators, social workers, deputies in the Italian Parliament, and other such groups. Opinions were solicited even from some film makers and from a few parents and children. The book also contains a resume of European laws relating to film and children, plus an adequate bibliography.

Eisner, Lotte H. *L'Écran Demoniaque.* Paris: André Bonne, 1952, 187 p.

Another volume in the laudable series is *Encyclopédie du Cinéma.* Its title can be translated as *The Screen "Possessed."* It deals, not surprisingly, with the German expressionist film, as its subtitle, "The Influence of Max Reinhardt and Expressionism," which makes it additionally clear. There is little doubt that this book represents the most complete documentation of this important phase in the history of world film. It covers the movement all the way from Wegener's *Der Golem* (1914), to Peter Lorre's postexpressionist *Der Verlorene* (1951). The author places her subject within its historical and social background, paying special attention to what she calls, the German disposition toward expressionism, leaning strongly in this respect on the theories of Edschmid and Worringer. The book seems equally important from a social-historic as it is from a film-historic point of view.

Exposition Internationale d'Art Cinematographique. Venice, 1950. *Le Film pour Enfants.* Rome: the Exposition, 1951. 121 p.

A publication of the Venice Film Festival devoted to the children's film. It resulted from a conference held in connection with this festival in 1950. Several of the articles discuss what is known with reasonable certainty about a child's perception of a film. Mary Field, the British educational film pioneer, and for years producer of children's films for the Rank organization, tells about her efforts and particularly about problems of distribution. Local experts pinpoint the situation in a number of countries; some of them provide surprising information. A resume is given of the discussions of the conference, while relevant legislation is also summarized. The most useful part of the book may well turn out to be the imposing filmography of films especially made for children all over the world, country by country. While no claims are made for completeness, this listing will, no doubt, open eyes.

Faasch, Dr. Werner. *Einfuebrung in die Wissenschaftliche Kinematographie.* Halle: Knapp, 1951. 76 p.

This introduction to scientific filming is addressed to scientists and scholars generally to make them acquainted with several ways in which film can be used in their investigations. This down-to-earth book starts by defining the boundaries of the field of scientific film, particularly in regards to the entertainment film, with which, the author believes, it has only celluloid in common. The rest of the book is pretty technical, describing the various scientific film installations in use in Germany. The emphasis is naturally on the equipment provided—and much of it originated—by the Zeiss Company. The book is well illustrated with photographs and drawings.

Golovnia, A. *La Luce nell' Arte dell' Operatore.* Rome: Bianco e Nero, 1951. 286 p.

There are few, if any, useful books about the art of the cameraman, mostly, one surmises, because cameramen are not given to theorizing. This is unfortunate since the cameraman's contribution to a film is of crucial, if underestimated, importance. One should welcome, therefore, this book by Anatol Golovnia, surely one of the world's best-known cameramen, whose name is as closely tied to that of Pudovkin as Tisse's to Eisenstein, or Bitzer's to Griffith. Golovnia counts among his credits, films as *Mother, The End of St. Petersburg, Storm Over Asia, Deserter,* and *Suvorov.* His book deals mainly and in exhaustive detail, with the many ways in which light can be used for expressive purposes. To my knowledge it is the only book on its subject. The Italians did well to translate it into their language.

Goetz, Karl-August. *Film in der Zeit.* Heidelberg: Filmclub, 1951. 36 p.

This booklet discusses film in relationship to its time, its social, and cultural era. Its subtitle reads: "The Film as the Twentieth-Century Means of Expression." It can best be described as an essay in the social psychology of the film. Its theme is that film is the only means by which our complicated social structure can find adequate artistic form. The theories of Le Bon, Freud, Herder, and McDougall are brought to bear on the problem, as are the styles and contents of several modern films.

Hagemann, Walter. *Der Film: Wesen und Gestalt.* Heidelberg: Vowinckel, 1952. 228 p.

A new book on the character and form of the film, written by the man who is spearheading the serious study of film in the universities of Germany thru his work as head of the University of Muenster's "Institut fuer Publizistik," one of Europe's most active centers for the study of mass-communications. This institute has already been responsible for a number of books on the role of newspapers and magazines in society, including Dr. Hagemann's *Die Zeitung als Organismus* and *Vom Mythos der Masse. Der Film* deals with film in all its aspects, but of course, particularly with its character as a device for communication.

Hagemann, Walter, editor. *Filmstudien.* Emsdetten (Westf.): Lechte, 1952. 92 p.

This compilation is the result of a pioneering seminar in film, held at the University of Muenster during the year 1950–51. The editor is Dr. Hagemann mentioned above. The short studies that make up the book deal with the following topics: the style of religious films, the German postwar film, music in the film, film and the national character of the U. S., the dramaturgy of the trailer, the structure of the newsreel, the nature of showmanship, and inevitably, the films of Jean Cocteau. The scope of interests displayed in this book, gives much hope for significant further contributions from Germany.

Lhotsky, Dr. Jaromir. *Der Film als Experiment und Heilmethode.* Vienna: Maudrich, 1950. 136 p.

A book of special interest to psychologists, dealing, as it does, with the uses of film in experimental psychology, and with the practical application of film as a method of mental therapy. The author sets out by formulating theories encompassing the film experience, leading to a number of hypotheses covering the relationship of psychology to film. A chapter is devoted to the technical problems involved. Then the experimental and therapeutic uses of the film are discussed in detail and an attempt is made at describing a methodology. Dr. Otto Poetzl, of the University of Vienna, is responsible for a stimulating 25-page appendix about the affinities between film and dream.

Liotard, André F., and Samivel, Jean Thévenot. *Cinéma d'Exploration: Cinéma au Long Cours.* Paris: Chavane, 1950. 126 p.

A comprehensive, critical discussion of the travel film—the film bringing to life far-away people and places—a kind of film by the way, as old as the history of the medium. The writers, all of them active and capable practitioners of their subject, begin by attempting to define the limits, the principles of this exotic subdivision of the documentary film. The book is unusually complete, and rarely inaccurate. It covers the earliest filmic treatment of polar expeditions as well as the latest efforts to film submarine life half a mile down; it analyzes the work of—to name but a few well-known names—Amundsen, Beebe, Buck, Chauvin, Cousteau, Fanck, Flaherty, Gide, Ichac (whose film about the Annapurna expedition is about to be released here), Murnau, Ponting, Shackleton, Sucksdorff, Wright, and innumerable others. In addition to its critical and historical values, the book is comprehensive enough to serve as a reference book.

Mammucari, Giovanni. *La Soggettivazione nel Film.* Rome: Smeriglio, 1951. 79 p.

It's remarkable how little attention has been paid, both in the theory and practice of film, to the implications of the use of what is known as the "subjective camera." This book, while hardly the last word on the subject, attempts to sum up what has been done and thought in this direction. Most of the films which have toyed with the limited point of view technic are cited as examples. It's unfortunate that the largest part of the illustrations is from a notable failure, Robert Montgomery's *Lady in the Lake.* The book, however, is an adequate introduction to a tantalizing, and increasingly important subject.

Masetti, Enzi, editor. *La Musica nel Film.* Rome: Bianco e Nero, 1950. 148 p.

A collection of articles about the function of music in film. There seem to be few aspects of this topic that are not touched upon in this book. Most of the contributors are Italian, but film music in England, the United States, and the Soviet Union is handled by the insiders Ernest Irving, Daniel Amfitheatrof, and Tikhon Khrennikov, respectively. As a curiosity, a short film-scenario by the

composer Alban Berg is reprinted. Mario Verdone compiled an elaborate bibliography in several languages.

Mostra Internazionale d'Arte Cinematografica. *Il Neo-realismo Italiano: Documentazione.* Venice, 1951. 149 p.

A summing up and an analysis of the achievements of the postwar Italian film, commonly called the "neo-realist" film. The reasons underlying the development of this significant, but not original, style in Italy are discussed in relation to dramatic as well as documentary production. The filmography which takes up most of the book lists all feature films produced from 1945 to 1951, not only those in the neo-realist style; it supplies complete credits and a synopsis of each film. There is also a fine bibliography by the indefatigable Mario Verdone.

Mueller, Dr. Gottfried. *Dramaturgie des Theaters und des Films.* Wuerzburg: Triltsch, 1952 (Fifth enlarged and revised edition). 216 p.

The latest version of what seems to be becoming the standard German work on the relation of film and theatre in general, and the dramaturgy of both media in specific. Readers ought to be warned that the book is controversial, to say the least. The author takes issue with many writers, known as "recognized authorities"; however, even if one finds oneself in total disagreement with Dr. Mueller, polemics make exciting reading. Yet, the book is scholarly in the German tradition; it draws on all sources available including the most recent, and the-seemingly-unlikely. The author's touch of arrogance can possibly find an excuse in this thoroness, and in a number of intriguing insights. The German director, Wolfgang Liebeneiner, contributes an introductory essay on the relation between director and creative writer in theatre and film. An appendix provides Dr. Mueller with room to expound on the affinities of the Indian drama with the film. All in all, a book that cries for critical analysis.

Osten, Gerd, Artur Lundkvist. *Erotiken i Filmen.* Stockholm: Wahlstrom, 1950. 158 p.

Sweden, less prone to prudery than other nations, has come up with a scholarly and yet lively study of eroticism in the film. A clear distinction is made between obscenity and eroticism. Films from practically all major film-producing countries supply the material for discussion. Emphasis is on Swedish and Italian films, which have generally exhibited an unembarrassedly natural attitude toward portraying the age-old phenomena of love. A remarkable series of stills, many of censored scenes, embellishes this book.

Peters, Dr. J. M. L. *De Taal van de Film.* The Hague: Govers, 1950, 170 p.

A Dutch doctoral dissertation which carries as its full title: *The Language of the Film: Character, Effect, Beauty and Importance of the Film as a Means of Expression.* Quite an order! The purpose of this important study is to look for the causes of the effects of film in the very structure of the medium of film itself. The author endeavors to construct a basis for a scientifically acceptable grammar of the film, based largely on ideas supplied by Charles Morris in his

Signs, Language and Behavior, a book to which this study owes its origin. The final chapter applies the findings to the educational film, Dr. Peters' prime interest. Of all the books mentioned in this column, this one certainly warrants more consideration.

Shdan, W. *Dramaturgie des Populaer-Wissenschaftlichen Films.* Berlin: Deutscher Filmverlag, 1951. 155 p.

Here is another unique book, in a rather specialized field: a German translation of the Soviet textbook on the writing of popular-scientific films. Since all books on the writing of films approach their subject exclusively in terms of theatrical entertainment (a mere segment of the entire field of film), this book is a novelty, indeed. But it is much more than a novelty. Even tho one does not see eye to eye with the Marxist philosophy underlying this treatise, it has a great many sensible things to say of universal applicability. It appears that the spreading of knowledge about all aspects of science, in an easily digestible yet truthful fashion, is high on the agenda of Soviet film production. Consequently the training of scientific film makers is taken with the utmost seriousness. A thread running all thru this book is the author's conviction that both science and art are mutually-enforcing forms of knowledge: the scientist proves, the artist shows, and both convince, the one with logical arguments, the other with images. Critical scrutiny may pan out much of use from this book. For those with no knowledge of German, we also have the original Russian edition available.

Solaroli, Libero. *Come Si Organizza un Film.* Rome: Bianco e Nero, 1951. 171 p.

A handbook of all the production aspects of film from the Italian point of view, and based on current (1951) conditions in Italy. It gives a clear picture of exactly what it takes to make a film there, any film. The financial, legal, trade-union and all the other manifold facets of film-productions receive a conscientious treatment. Many examples of actual and suggested budget breakdowns are given and specific problems relating to specific films get detailed analysis. The appendix provides the Italian laws pertinent to the subject, plus an itemized list of rental costs.

Waldekranz, Rune. *Modern Film.* Stockholm: Walhstrom, 1951. 286 p.

A Swedish history of the film of the past decade covering the entire world, but especially valuable for the light it throws on the German film under Hitler, the case of G. W. Pabst, for example. A good thing about this book is that it generalizes little, but treats each film in detail. Here, then, is a well-informed inventory of the best—and the worst—the film has had to offer since 1940. The many well-chosen stills add to the value of the book.

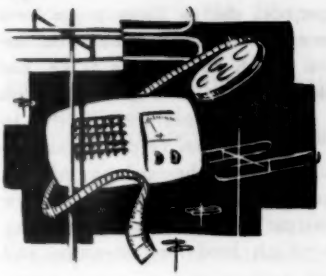
Willeke, Caspar. *Film, Kunst und Moral.* Duesseldorf: Altenberg, 1950. 95 p.

An abbreviated version of the author's doctoral dissertation (Bonn University, 1948), dealing with the relation of film and art to morality as seen from a

strictly Catholic point of view. The four chapters cover the following: do theologians have a right to criticise films? the ethical failure of the film; should films represent evil? and, the tasks of the church in regard to the present-day film. The book gives ample evidence of wide-ranging research, in theology and philosophy as well as in art and film. It spells out the present German Catholic attitude toward the film.

Willink, Luc. *Een Halve Eeuw Film: Een Kunst-Critische Geschiedschryving.* The Hague: Leopold, 1952. 209 p.

As the title indicates this is a history of the film from a broadly art-critical standpoint. It is in Dutch, and that's a pity, for here is an excellent book, succinct, and altogether knowledgeable, offering many fresh insights into the growth of film and the bearing of cultural and social phenomena on this growth. Much attention is given to the social pressures that caused changes in the styles of films. To condense the history of the first 50 years of film into a unified, learned and readable book is a feat. The appendix breaks a lance for the cultural necessity of starting an organized feature-film industry in the Netherlands, and ably musters the answers to the arguments presented against such an undertaking.



FILM REVIEWS

FILM RESOURCES FOR A TEACHER EDUCATION PROGRAM

● RICHARD H. WILLIAMS

The one institution which can offer the greatest opportunity for increasing the potential for democratic living is the public school. We who are involved in the conduct of a teacher education program, therefore, have the responsibility to utilize all the resources at our disposal to the end that the preservice experience of our students will be as meaningful and worthwhile as possible. To one resource area—the 16 mm film—this article addresses itself.

Films in six broad areas, rather than in specific courses will be reviewed. These areas are curriculum, growth and development, guidance, learning, school and community, and teaching. The films reviewed below will be only those which lend themselves directly to use in the college classroom. No attempt to discuss all usable films within the above categories will be made. However, more complete listings of films appear at the end of each discussion group. The parenthetical reference is made to the distributor of the film.

Curriculum

The concept of curriculum, altho tending to vary from one college to another, is very definitely a most important aspect of any and all teacher education programs. Here are some suggestions relative to film resources in this area:

BROADER CONCEPT OF METHOD: PART I—DEVELOPING PUPIL INTEREST 13 min. (McGraw-Hill)

BROADER CONCEPT OF METHOD: PART II—TEACHER AND PUPILS PLANNING TOGETHER 19 min. (McGraw-Hill)

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Part I describes a comparison between the formalized, teacher-dominated class session and the more relaxed informal group situation. In the latter situation, the teacher is very much in evidence; however, he assumes the role of leader or guider of activities. In the former sequence, things seem to go from bad to worse until the situation is climaxed by an absurd use of a mnemonic device. Part I implies a two-pronged generalization which not only is false, but may prove detrimental. (The idea of either-or tends to perpetuate the fallacious dichotomy of right or wrong, black or white, and so on.) Namely: everything in the "traditional" school is bad; everything in the "new" school is commendable.

Part II evidences that opportunities which present themselves may be seized upon much more readily in the pupil-teacher planning situation. New learnings may be made to function in the local situation. Concepts and ideas may be manifested in activity and experiences which lend new meaning and worthwhileness to them.

CHILDREN LEARNING BY EXPERIENCE 30 min. (United World)

Using as a focal point some of the basic assumptions which we have come to accept—children want to learn; children learn best by virtue of activity and experience; feeling of success, a stimulating environment, and the respect of the peer group and adults are essentials for healthy growth—this film has the objectivity and realism for which British film producers have become well known.

EXPERIMENTAL STUDIES IN THE SOCIAL CLIMATES OF GROUPS 30 min. (Iowa University)

The quite well-known study by Lippitt and White under Kurt Lewin's direction is a more forceful experience thru this film report. One of the biggest problems which faces the teacher education program today is that of the achievement of democratic classroom management. To gain acceptance of the need for this concept is not too difficult a task. To get across some procedural ideas relative to its attainment, however, is somewhat different. Thru depicting the transition from an autocratic group and a *laissez faire* group to a democratic group, this film makes a definite contribution and is of such worth that it compensates for the fact that the camera was somewhat out of focus thruout.

LEARNING THROUGH COOPERATIVE PLANNING 18 min. (Columbia University)
WE PLAN TOGETHER 20 min. (Columbia University)
PRACTICING DEMOCRACY IN THE CLASSROOM 20 min. (Encyclopaedia Britannica Films)

It may be inadvisable to attempt to group films in this manner; however, these three have a commonality of purpose, thru their emphasis on teacher-pupil planning and individual-group interaction. They avoid the implications of Part I, BROADER CONCEPT OF METHOD by not contrasting two methods. By simply stating their case, the viewer is more able to evaluate the method shown thru the film experience itself. The EBF film tends to be more verbose and platitudinous and less objective than Columbia films, but all three should prove to be very stimulating "springboards" to the study and discussion of curriculum problems.

NEAR HOME 27 min. (British Information Service)

This film shows a group of English children investigating their community, collecting data, organizing and reflecting on their findings, sharing the results

with their classmates, and making a final "county fair" report to the community. However, it is marred by a rather superfluous introduction. Prime among the questions which NEAR HOME raises, is the question "What will they do in succeeding years?" This film serves as a fine stimulant for study and discussion to the end that some of the questions may be answered.

PROBLEM OF PUPIL ADJUSTMENT: PART I—THE DROP OUT 19 min. (McGraw-Hill)
PROBLEM OF PUPIL ADJUSTMENT: PART II—THE STAY IN 19 min. (McGraw-Hill)

The curriculum pattern of a school may well account for a considerable percent of those children who do not graduate from high school. Part I does quite a creditable job in addressing itself to this problem. It tends to overdramatize some sequences in making its point, however. Part II becomes too pat. The visitor to the school sees mechanical evidence of a "revitalized" curriculum without gaining real insights as to whether individual needs are being met. For example, we cannot be sure of solving a problem of pupil adjustment by changing from the teacher reciting Shakespeare to a record by Gielgud, Evans, or the Barrymores. It seems to this writer that the pitfalls of bald comparison are encountered again.

HIGH SCHOOL: YOUR CHALLENGE 16 min. (Coronet)

Altho the challenge here is aimed at the student, it seems that it must also be thrown out to the teachers. The problem our classes may attempt to solve takes this form: how can the teachers, administrators, and students work together to create a school environment that will stimulate the enthusiasm for it that Mack Wilson evidenced for his school? What are the curriculum principles which will best serve these ends? How may we most readily translate these principles into school practices? One value of this film is that it simply introduces some ideas and suggested practices, leaving the investigating, evaluation, and ultimate disposition of them up to the viewer.

CHILDREN ARE CREATIVE (Bailey)
CHILDREN MUST LEARN (New York U)
COMMUNITY RESOURCES IN TEACHING (Iowa U)
DAY IN LIFE OF FIVE YEAR OLD (Columbia U)
LIFE'S SUMMER CAMPS (McGraw-Hill)
LEARNING FROM CLASS DISCUSSION (Coronet)
MOTIVATING THE CLASS (McGraw-Hill)
NEW BUILDERS (British Info. Service)
PLAY IS OUR BUSINESS (Sun Dial Films)
PROBLEM CHILDREN (Ohio Dept. Pub. Welfare)
SCHOOL (THE) (United World)
SCHOOL—CHILD'S COMMUNITY (Wayne U)
SCHOOL IN CENTREVILLE (NEA)
TIME TO SPARE (A-V Aids Service)
WILSON DAM SCHOOL (TVA)
YOUR CHILD IS A GENIUS (David Robbins)

Growth and Development

As was evidenced in the Lewin study film above, one of the advantages of the 16 mm. film resource is its use as a medium of reporting research and ongoing study. Myrtle McGraw's very important work in motor development is vividly shown in the film GROWTH: A STUDY OF JOHNNY AND JIMMY (Silent) 42 min. (International Film Bureau).

Likewise the many film reports from the Yale Clinic of Child Development under Arnold Gesell's supervision are important resources for this particular aspect of the teacher-education program. Among these are to be found:

BABY'S DAY AT FORTY-EIGHT WEEKS 10 min. (Encyclopaedia Britannica Films)
BABY'S DAY AT TWELVE WEEKS 10 min. (Encyclopaedia Britannica Films)
BEHAVIOR PATTERNS AT ONE YEAR 10 min. (Encyclopaedia Britannica Films)
EARLY SOCIAL BEHAVIOR 10 min. (Encyclopaedia Britannica Films)
THIRTY-SIX WEEKS BEHAVIOR DAY 10 min. (Encyclopaedia Britannica Films)

The fact that experiences in early childhood have their effect on adult life serves as a point of departure for two sets of films. The first set starts with the young adult and traces the current problem to the childhood experiences:

FEELING OF HOSTILITY 25 min. (McGraw-Hill)
FEELING OF REJECTION 20 min. (McGraw-Hill)
FEELINGS OF DEPRESSION 31 min. (McGraw-Hill)
OVER-DEPENDENCY 32 min. (McGraw-Hill)

The second set depicts healthy, normal youngsters at various ages and stages of development. We are made aware that healthy, happy, interested, and constructively active children have a very good possibility of becoming like-minded adults. This set is based on the book of Elizabeth Hurlock.

CHILD CARE AND DEVELOPMENT 17 min. (McGraw-Hill)
CHILDREN'S EMOTIONS 21 min. (McGraw-Hill)
HEREDITY AND PRE-NATAL DEVELOPMENT 21 min. (McGraw-Hill)
PRINCIPLES OF DEVELOPMENT 16 min. (McGraw-Hill)
SOCIAL DEVELOPMENT 16 min. (McGraw-Hill)

In the film FACE OF YOUTH 28 min. (University of Wisconsin) we have a situation depicted which tends to be in-between the above two approaches. Here we see the danger signals of stress and frustration on the face of youth. Steps are taken to correct the situation at its inception. The teacher, public health nurse, and child guidance center cooperatively work with the child and parent in the solution of the problems. The union of effort described is most assuredly a hopeful sign.

Thru THIS IS ROBERT 77 min. (New York University) we are able to observe many facets of Robert's behavorial development from approximately two and one-half years old to the age of seven. This film has increased value the more it is viewed. The continuity is of a different order from that to which we have become accustomed, being structured more in terms of like-behavior rather than chronology. This tends to give it less coherence on the initial viewing. Midway in the film is an effective use of mannequins to describe and analyze Robert's home environment and its effects on the behavior we see.

ANGRY BOY (International Film Bureau)
BABY MEETS HIS PARENTS (EBF)
BEHAVIORAL CHARACTERISTICS OF THE RHESUS MONKEY (PCR)
CHARACTERISTICS OF GIBBON BEHAVIOR (PCR)
CHILD AT PLAY (Columbia U)
CHILDREN GROWING UP WITH OTHER PEOPLE (United World)
CRAWLING AND CREEPING (International Film Bureau)
FAREWELL TO CHILDHOOD (International Film Bureau)

FEARS OF CHILDREN (International Film Bureau)
FRUSTRATING FOURS AND FASCINATING FIVES (McGraw-Hill)
FRUSTRATION PLAY TECHNIQUES: PART I—BLOCKING GAMES (PCR)
FRUSTRATION PLAY: PART II—FRUSTRATION AND HOSTILITY GAMES (PCR)
GROWTH OF INFANT BEHAVIOR (EBF)
HUMAN GROWTH (Oregon U)
HUMAN REPRODUCTION (McGraw-Hill)
LIFE WITH BABY (McGraw-Hill)
PREFACE TO A LIFE (United World)
PROBLEM SOLVING IN INFANTS (Warden-Gilbert)
QUIET ONE (Athena)
REACHING: PREHENSILE BEHAVIOR OF THE HUMAN INFANT (International Film Bureau)
REFLEX BEHAVIOR OF THE NEWBORN INFANT (International Film Bureau)
SHYNESS (McGraw-Hill)
SOCIAL BEHAVIOR OF THE RHESUS MONKEY (PCR)
STORY OF MENSTRUATION (International Cellucotton)
TERRIBLE TWOS AND TRUSTING THREES (McGraw-Hill)
UNDERSTANDING CHILDREN'S PLAY (Caroline Zachary Institute)

Guidance

Altho it is not our immediate concern, it should be mentioned in passing that there are increasing numbers of good films in the areas of social, educational, and vocational guidance. Altho these films are specifically designed for use by school age students, teacher education students should become familiar with them. Coronet, EBF, and Young America are in the forefront of production of films in the social and educational guidance areas. The Vocational Guidance Films productions have become "standards" in the vocational guidance field. In this area alone there are from 50 to 100 very acceptable titles which are descriptive of specific occupations.

I should like to call attention to three films which deal with different levels and types of problems confronting the guidance personnel.

CLIENT-CENTERED THERAPY PART I 30 min. (Psychological Cinema Register)
CLIENT-CENTERED THERAPY PART II 30 min. (Psychological Cinema Register)

This film permits us to observe the nondirective approach in guidance. It is one thing to read, talk about, and discuss the work that Carl Rogers of Chicago University has been carrying on for several years. It is quite another thing to see and hear Professor Rogers conduct his therapeutic interview. It seems to this writer that, regardless of the orientation of the guidance instructor, this film merits positive consideration for use. Technically, the sound on the film leaves much to be desired in many places, even allowing for the somewhat adverse conditions under which the recording was made.

COUNSELING—ITS TOOLS AND TECHNIQUES 20 min. (Vocational Guidance Films)

Comments by professors of guidance relative to this film attest to its value as a classroom experience. However, there is wide divergence in the reasons given for including it in the course structure. The extreme positions expressed were to the effect that (a) "next to actually conducting an interview with a high-

school youngster, viewing the film constituted the most valuable experience the teacher could provide for his students;" (b) "altho I disagree with many of the guidance practices depicted in the film, I use it. It provides excellent discussion background for the next few days."

GUIDANCE PROBLEM FOR SCHOOL AND HOME 17 min. (Columbia University)

Not only does this film highlight the increased need for understanding and cooperation between home and school, but it quite forcefully brings out the fact that the problem of a child with a problem is a complex one with many facets, ramifications, and implications.

ACTIVITY GROUP THERAPY (Columbia U)
APTITUDES AND OCCUPATIONS (Coronet)
LEARNING TO UNDERSTAND CHILDREN: PART I—A DIAGNOSTIC APPROACH (McGraw-Hill)
LEARNING TO UNDERSTAND CHILDREN: PART II—A REMEDIAL PROGRAM (McGraw-Hill)
PERSONAL QUALITIES FOR JOB SUCCESS (Coronet)

Learning

Thru the efforts of those in the field of comparative psychology we are learning more about how we learn and the multitudinous factors which pertain to the problem. We also are benefiting from the material on film which is being reported out from the experimental laboratories. The many implications for the classroom situation to be found in MOTIVATION AND REWARD IN LEARNING 15 min. (PCR) is a case in point. The importance of observational accuracy to this problem may we well served thru the film experience FIDELITY OF REPORT (Silent) 6 min. (PCR). During this film we see a street scene in which a double holdup occurs with the one thief making a getaway. Questions are then asked and the sequence may be repeated to verify the answers given. It provides a fitting experience in the pitfalls of "generalized seeing" and the problems relative to learning which arise as a consequence.

ACQUISITION OF THE TOKEN REWARD HABIT IN THE CAT (PCR)
ANALYSIS OF THE FORMS OF ANIMAL LEARNING (PCF)
CATS IN THE PUZZLE BOX (PCR)
COLOR CATEGORIZING BEHAVIOR OF RHESUS MONKEYS (Coronet)
ELEVATED MAZE LEARNING IN THE WHITE RAT (PCR)
EXPERIMENTAL PSYCHOLOGY OF VISION (PCR)
LEARNING AND GROWTH (EBF)
OF PUPS AND PUZZLES (Teaching Film Custodians)
TESTING ANIMAL INTELLIGENCE (PCR)
TESTING INTELLIGENCE WITH STANFORD BINET (Indiana U)
VISUAL FORM DISCRIMINATION IN THE CAT (PCR)
WILLIE AND THE MOUSE (TFC)

School and Community

This title itself suggests an interaction which is evidenced by an active mutual responsibility. CHILDREN IN TROUBLE 10 min. (N. Y. Department of Commerce) reflects this as the community at large approaches its problems. It depicts the need for increased cooperation between the several institutions which constitute the whole. SECURE THE BLESSINGS 30 min. (National Education Association) suggests a cause and effect relationship of this interaction in

that the school must do an increasingly effective job of developing democrats. A democratic community cares about its schools and will insist that its facilities be adequate. This relationship would tend in the direction of a continuum of mutual benefit. I submit that this film should be viewed by every adult in every community and by all preservice teachers.

AND SO THEY LIVE (NYU)
BETTER SCHOOLS FOR RURAL WISCONSIN (Univ. Wisconsin)
EDUCATION IS GOOD BUSINESS (General Pictures)
FAMILIES FIRST (N. Y. State Dept. Commerce)
FIGHT FOR BETTER SCHOOLS (McGraw-Hill)
HOMETOWN, U. S. A. (Look)
LEARNING DEMOCRACY THROUGH SCHOOL AND COMMUNITY ACTIVITIES (Educational Film Ser.)
LESSONS IN LIVING (National Film Board of Canada)
MAKE WAY FOR YOUTH (Ass'n. Film)
SCHOOLHOUSE IN THE RED (Kellogg Foundation)
SCHOOLS MARCH ON (McGraw-Hill)
THIS IS TOMORROW (TFC) [Short version of THE CITY (World)]
WAY OF LIFE (International Harvester)
WHO WILL TEACH YOUR CHILD (McGraw-Hill)

Teaching

It is not possible to provide our students with a bill of specifics with which to enter the classroom situation upon graduation. It is possible, however, to provide types of experiences for them which do become part of the equipage with which they begin their teaching. The 16 mm film can be employed in assessing the multiplicity of factors involved in good course and classroom management.

Altho it is basically aimed at college level teaching, ACCENT ON LEARNING 28 min. (Ohio State University) represents one of the best portrayals of the place and function of audio-visual materials in the classroom. It states quite adequately the need for bringing all the resources at our disposal to bear on our classroom experiences. It also gives substance and meaning to the statement that learnings are more meaningful and what is learned is retained longer in proportion to the number of senses that are involved in the initial process.

MAINTAINING CLASSROOM DISCIPLINE 14 min. (McGraw-Hill) performs an adequate function in displaying good classroom management procedures. The comparison which is handled in this film seems to measure up better than it does in those mentioned above. Mr. Grimes stops teaching mathematics and begins teaching children mathematics. Therein lies the tale.

AMERICAN TEACHER (McGraw-Hill)
BEFORE THEY ARE SIX (National Film Board of Canada)
BRING THE WORLD TO THE CLASSROOM (EBF)
CHALKBOARD UTILIZATION (Teaching Materials Service, Beloit, Wis.)
FELTBOARD IN TEACHING (Wayne U)
FIELD TRIP (Va. State Dept. of Ed.)
FIELD TRIP TO A FISH HATCHERY (Coronet)
HOW TO MAKE LANTERN SLIDES (Indiana U)
INDIVIDUAL DIFFERENCES (McGraw-Hill)
INSTRUCTIONAL FILMS—THE NEW WAY TO GREATER EDUCATION (Coronet)
INTRODUCTION TO STUDENT TEACHING (Indiana U)
LISTEN WELL, LEARN WELL (Coronet)

PREPARATION OF TEACHERS (United World)
PROGRESSIVE EDUCATION (McGraw-Hill)
TEACHERS CRISIS (McGraw-Hill)
TEACHERS FOR TOMORROW (Univ. Wisconsin)
USING AUDIO-VISUAL MATERIALS-SELECTING AND PLANNING (United World)
USING AUDIO-VISUAL MATERIALS-UTILIZATION (United World)
WET MOUNTING (Indiana U)

RESEARCH ABSTRACTS

INTERNATIONAL COMMUNICATION

PUBLIC OPINION QUARTERLY. "International Communications Research." *Public Opinion Quarterly* 16: 481-701; Winter 1952-53.

This special issue is entirely devoted to the subject of International Communications Research, and is intended to provide a general survey of the field. The issue was prepared under the guest editorship of Leo Lowenthal, director of the Evaluation Staff of the International Broadcasting Service, U. S. Department of State. It consists of 21 articles, well over 200 pages, divided into four parts: The Field of International Communications Research, Problem Areas, Technics, and Findings.

The Field of International Communications Research

LAZARSFELD, PAUL F. "The Prognosis for International Communications Research." The opportunities and responsibilities of international communications research can be considered within the framework of three major premises. First, international communications research will have much of the funds and talent that domestic research has previously commanded. It will therefore pick up the new ideas and carry them on. Second, the international character of the field will allow new subjects for investigation, such as the possibility of studying social phenomena in different social contexts. Third, the international field permits more productive experimentation with methods in such areas as studying the relationship between area and survey research.

LASSWELL, HAROLD D. "Psychological Policy Research and Total Strategy." In the non-Soviet world, strategies must emerge by consensus rather than by command. This is made difficult because there is little unity in conception of the self of the non-Soviet world, and there is no overwhelming measure of agreement upon basic goals and expectations. Communications and psychological policy research can do much to clarify the nature of the objectives and self-estimates of the free world, and can help identify the factors essential to rational strategies of unification.

DAVISON, W. PHILLIPS, and GEORGE, ALEXANDER L. "An Outline for the Study of International Political Communications." International political communication constitutes an area in which the organization of existing knowledge is particularly difficult. A diagram of relations can be constructed to serve as an aid to hold together relevant observations on the subject. Such a framework helps to stress the extremely important and involved relationship between national policy and the politically relevant behaviorial effects of communication.

GLOCK, CHARLES Y. "The Comparative Study of Communications and Opinion Formation." Some of the areas which urgently need attention to help understand the influence of communication in the formation of opinion on a worldwide basis are: (a) More basic quantitative information needs to be gathered on the availability and distribution of the mass media. This is important, as the role of the mass media in an area will be highly influenced by what media are available and how they are distributed. (b) Knowledge of the mass media must be supplemented by an understanding of the role of informal communications in the communication process. Those who rely on oral transmission of news, and those who carry the news should be identified. The structure of the oral communications network should also be studied. (c) Information will be needed on the way news is interpreted, and the factors which influence the interpretation in the various parts of the world. For example, the concepts and phrases in which American writers discuss a subject might be inappropriate in many places, because the images of the external worlds are different from those taken for granted by Americans.

Problem Areas

SMITH, BRUCE L. "Communications Research on Non-Industrial Countries." Americans may have underestimated some of the communications problems due to the difference between the "subjective worlds" of the industrialized and nonindustrialized peoples. This latter group includes over two-thirds of the world's population. Nonindustrialized peoples have central values greatly differing from Americans: slower tempo of life, high evaluation of politeness, and great emphasis on religion. More information is needed on these points and others such as the values of courage, profit-taking, and the roles of the sexes.

WHITE, RALPH K. "The New Resistance to International Propaganda." A real problem in international propaganda is in communicating with one's friends without having the communication rejected as just propaganda. It is necessary to distinguish very sharply between the attitudes that confront us on this side of the Iron Curtain, and those on the other side. Behind the Iron Curtain, a hard-hitting anti-communist message seems to be just what the listeners want. On this side of the Curtain, the sensitivity to propaganda coming from either side is great. To give more impact to our communications, the emphasis should be on objectivity, letting the news value be almost the only criterion of what should be included or emphasized.

KAUFMANN, HELEN J. "Implications of Domestic Research for International Communications Research." Increasing emphasis is being placed by international communications researchers on the need for recognizing the cultural differences between the peoples of the United States and the foreign populations which are becoming the objects of study. These differences should not prevent

many findings and technics of domestic research from being extended to the international scene. While they may not be taken over *per se*, they may serve as points of departure. Examples of domestic research which may be applicable to international communications are studies of attitude changes and of the specific factors which have been found to influence audience attitudes.

MACKNIGHT, JESSE M. "The Contributions of Research to Operating Experience." Social science research training can be useful in government work in such areas as evaluating the research product or applying it to day-to-day situations. Research would be more valuable in operations if certain problems were solved: (a) Research personnel are too often unable to state their findings in such a way that the potential users can really understand its meaning. (b) Reports and studies continue to be produced without regard to finding out if the material is really responsive to the requirements of the consumers. (c) Professional thoroness should not delay the delivery of needed research information to those who need it.

Technics

BERROL, EDWARD, and HOLMES, OLIVE. "Survey and Area Approaches to International Communications Research." Survey and area research must function together in assessing international communications. The American opinion researcher doing domestic surveys can act as his own area expert, a function he cannot fulfil in an alien culture. He needs an area expert to aid in the formulation of the research problems, and in analysis. Conversely, the area expert needs the systematic quantitative methods of the survey specialist to supplement his own impressionistic techniques. Both methods seem necessary for any fruitful international communications study, and ideally, acquaintance with both disciplines should be combined in one individual.

SHELDON, RICHARD C, and DUTKOWSKI, JOHN. "Are Soviet Satellite Refugee Interviews Projectable?" There are many problems in doing research on inaccessible nations. Some of these problems are involved in using escapees from a nation as a sample of its total population. In 1951–52, 300 refugees from Poland, Czechoslovakia, and Hungary were interviewed. Results indicate that the refugees defected because of permissive or precipitating conditions which were of a personal nature rather than any real difference in attitudes between refugees and nonrefugees. It can be concluded that escapees are not essentially different from the parent population, and can, therefore, be used for projecting the broader outlines of political and economic opinion.

ERVIN, SUSAN, and BOWER, ROBERT T. "Translation Problems in International Surveys." A preliminary systematization can be made of some of the language problems which arise in the conduct of international surveys. In all cases, the primary concern is to minimize alteration of meaning in translation. Typical causes of distortion are bias from using language inappropriate to a social group, and differences between spoken and written languages. Checks for reliability of translation include translation by two or more translators, and pretests.

HERZOG, HERTA. "Listener Mail to the Voice of America." Altho letters from abroad suffer from such limitations as uneven quality and writer bias,

they offer strong attractions to researchers because they represent an act of responsiveness and come in without cost. A content analysis of 2500 letters to the VOA was made as a pilot study to indicate what could be learned by this approach. Results suggest that content analysis can provide such information as the reasons for writing, or a limited indication of certain subjective attitudes of the audience. It can also provide hypotheses to be tested, and highlight general trends.

INKELES, ALEX. "Soviet Reactions to the Voice of America." Analysis of references to the VOA in Soviet media helps to throw light on the reaction of Soviet officialdom to this government's broadcasts. With this in mind, a study was made of 900 references in Soviet newspapers, journals, and broadcasts covering 1947–1951. Data revealed that attention given the VOA definitely increased over the period, with the most intense attacks in publications read predominantly by Soviet intelligensia. Problems of method included those imposed by the difficulty in obtaining representative samples of the total national output of mass communications.

MASSING, PAUL W. "Communist References to the Voice of America." The previous study described above was enlarged to include references to the VOA in European satellite media. It confirmed the conclusion that Communist officialdom is concerned over the impact of the VOA. However, increased familiarity with both the Communist media and the type of data defined certain new methodological challenges. These include the questions of how to take into account indirect and hidden references to the VOA, and how to interpret the data bearing upon the contexts in which the references to the VOA occur.

JAHODA, MARIE, and KLAPPER, JOSEPH T. "From Social Bookkeeping to Social Research." A series of periodic content analyses were made of VOA broadcast scripts to provide executive personnel with information as to what was being said by the various language units. Typical of the problems which arose was the need for highly standardized procedure employing relatively simple categories which could be coded with high reliability. Without this, comparisons between different language services would have been difficult. Questions have been raised as to the adequacy of the purpose of the project itself, and whether the purpose should not be reformulated in terms of the total communication situation, taking into account such matters as presumed effect and audience interest.

KRACAUER, SIEGFRIED. "The Challenge of Qualitative Content Analysis." Three propositions are submitted regarding qualitative analysis: (a) One-side emphasis on quantitative content analysis may lead to a neglect of qualitative explorations, thus reducing accuracy. (b) The assumptions underlying quantitative analysis tend to preclude a judicious appraisal of the important role which qualitative analysis may play in communication research. Hence the need for theoretical orientation. (c) The potentialities of communications research can be developed only if, as a result of such reorientation, the emphasis is shifted from quantitative to qualitative procedures.

Findings

ROSSI, PETER H, and BAUER, RAYMOND A. "Some Patterns of Soviet Communications Behavior." Knowledge of the pattern of Soviet communications

exposure helps to understand the Communist system. An analysis was made of data obtained from 2700 interviews with Soviet displaced persons and refugees in 1950–51. Four associative clusters of media exposure were found. (a) Mass official (newspapers, magazines, books, Soviet radio). (b) Aesthetic official (movies and theatre). (c) Personalized official (lectures, agitation meetings). (d) Covert (discussion with friends, rumor, foreign radio). Exposure was shown to be strongly related to occupation, education, and residence, and only weakly related to sex.

MENDELSOHN, HAROLD, and CAHNMAN, WERNER J. "Communist Broadcasts to Italy." Attempts to counteract possible effects of Communist propaganda can be aided by knowledge of what is being said by Soviet propagandists, and how and why these things are being said. A content analysis made in 1952 of 106 Communists broadcasts to Italy provides some answers to these questions. Target groups of Communist broadcasts were the broad mass of lower middle and laboring classes. Objectives were to discredit the anti-Communist bloc, promote fear and hatred of the West and sympathy for the USSR. The division of functions was for the Moscow radio to provide "enlightenment" while quasi-clandestine radios meddled directly in Italian affairs.

LERNER, DANIEL. "International Coalitions and Communications Content: The Case of Neutralism." The management of an international consensus requires key symbols which will be accepted by all members of the coalition. The case of neutralism indicates the failure of a shared purpose in the American-centered free world coalition opposing Communism. This failure is partly caused by the lack of adequate key symbols acceptable to all members of the coalition, or by the opposition's taking over other key symbols such as "security." A program of research is needed to show how democracy can regain its stature as the key symbol of free world coalition.

RINGER, BENJAMIN B, and SILLS, DAVID L. "Political Extremists in Iran." A secondary analysis involves the use of survey data for some other purpose than that for which it was originally gathered. This often enables new findings at bargain prices because of the elimination of expensive and time-consuming field research. A secondary analysis was made of quantitative data on political extremists from a large-scale inquiry into communications behavior in the Near and Middle East. Results show that political extremists identified in a sample of Iranians share many social and behaviorial characteristics in spite of the fact that they are members of either extreme left or right.—*E. G. Sherburne, Jr.*

READABILITY

VERNON, P. E. ***An Investigation into the Intelligibility of Educational Broadcasts.*** London: Audience Research Department, British Broadcasting Corporation, November 1950. Also in SILVEY, ROBERT. "The Intelligibility of Broadcast Talks." *Public Opinion Quarterly* 15: 299–304; Summer 1951.

Purpose: (a) To what extent are informational radio talks, broadcast to Army recruits and adults in England, understood by their listeners? (b) What are the qualities in the broadcasts that make for greater or lesser intelligibility?

Procedure: Fifty Armed Forces Educational Broadcasts were presented over the BBC between January and May 1950, and 4613 responses were received from Army recruits and from regular members of the BBC Listening Panel, an average of 92 test papers per broadcast. Immediately after the broadcast, the listeners were asked to (a) rate it as easy or difficult, (b) rate it as interesting or dull, and (c) "write out, in your own words, all you can remember of the main points of the broadcast...or simply list the main points." The responses were graded by means of prepared scales, and the broadcast talks were analyzed in terms of some 35 characteristics. The intelligibility and listener rating test scores were compared with script characteristics by means of correlation analysis.

Results: (1) The higher his intelligence, the more likely the listener will understand the broadcast. (2) Broadcasts written at a difficulty level appropriate to the top third of the population convey little information to those of below average intelligence. (3) The greater the listener's interest in the broadcast, the greater his understanding. (4) Intelligibility of the broadcasts depended more upon their "interestingness" than upon any other factor. (5) The qualities which make for intelligibility, particularly for the intellectually average and backward groups, are: (a) limitation of the number of major teaching points, (b) clear summaries, (c) lucidity and liveliness of style, (d) concreteness of both subjectmatter and treatment, as indicated by fewer abstract nouns and more active verbs, and (e) the illustration of any principle or abstract points with illustrations that are within the ordinary listener's experience. (6) The qualities which hinder intelligibility are: (a) too speedy delivery, (b) flowery or literary metaphors, (c) overlong sentences, (d) difficult vocabulary, and (e) complex sentence construction. (7) The qualities which do not appear to affect intelligibility are: (a) the number of minor teaching points, (b) the speaker's delivery, and (c) conversational speech.—*William Allen.*

ALLEN, WILLIAM. "Readability of Instructional Film Commentary." *Journal of Applied Psychology,* 1952, 36, 164-68.

Purpose: In general, the relevance of film commentary readability to factual learning was investigated. More specifically, six facets of this problem were studied: (a) Are readability formulae, based on *printed* verbal materials, usable in measuring difficulty of film commentaries? (b) If so, will the grade level of the commentary affect the learning of factual material? (c) What differences in the prediction of the amount of learning exist between the Flesch, Dale-Chall, and Lorge readability formulae? (d) What affect have "human interest" factors in the commentary upon the learning of factual materials? (e) What factors, measurable by the above formulae, cause the commentary to contribute to factual learning? (f) What other factors, not measured by readability formulae, appear to contribute to factual learning?

Procedure: Four commentaries were prepared for each of the EB Films *The Mosquito* and *The Water Cycle*, being written at specific Flesch word counts on two levels of "reading ease" and "human interest." These were tape-recorded and played in synchronization with the films projected silently. The experimental group consisted of 668 sixth grade pupils. The experimental pro-

cedure was as follows: pre-test, two-week interval, showing of experimental film (control groups did not see film), 24 hour interval, re-test. The data was assessed in a three-fold manner: (a) An analysis of variance provided an estimate of errors caused by variables other than the experimental variable; (b) the criterion scores were expressed by the "percent of gain of the room for improvement"; and (c) the technic of correlation analysis was employed to determine the influence of specific factors in the film commentaries upon learning.

Results: (a) Learning of factual material is effected by the level of readability of the commentaries, an easier reading level resulting in significantly greater learning. (b) The three readability formulae were about equal in predicting comparative readability of film commentary when several were measured. (c) Where the subject matter lends itself to humanizing, the inclusion of "human interest" factors in film commentaries leads to increased factual learning. (d) The creation of an outline or the enumeration of facts to be learned results in increased learning over situations in which such enumeration was omitted. (e) Length of the passage has no measurable effect upon learning.—*Richard Williams.*

MOTION PICTURE

KAY, LILLIAN WALD. "The Entertainment Film as a Communicator of Economic Ideas." A research study by the Education Division of the Brookings Institution, Washington 6, D. C., October 1952.

Purposes: To secure answers to the following questions: (a) Can economic propositions be transmitted in an entertainment film? (b) Is the attempt to transmit such ideas in this way acceptable in educational situations? (c) Does knowing the sponsorship of a film make a difference in the way in which it is perceived? (d) Is the place where the film is viewed an important factor in the way in which it is perceived?

Procedure: The film used was *Headline Story* produced by the General Motors Corporation as an experiment to see if such a concept as "profits to the customer" could be incorporated into a film produced for theatrical entertainment. The film was shown to 478 people including persons enrolled in teachers college classes, two groups of students from adult education divisions of large universities, and two groups of high-school students. Of these people, 236 comprised the "informed" group who were told that the film was produced for General Motors. The remaining 242 were in the "not informed" group and were not told who sponsored the film.

Two testing instruments were used. One was an open questionnaire of six questions on the film administered to all subjects. The second was the Opinion Research Corporation's 61-Question Quiz on Economics, which consists of questions intended to measure both strength and direction of politico-economic attitudes, and amount of economic information. High scores indicate a conservative approach to economic issues. Low scores indicate a more negative attitude toward the economic system. Because of its difficulty, the Opinion Research Corporation's Quiz was not given to the high-school students.

The 61-Question Quiz was given at varying intervals after the film had been seen, ranging from immediately to one week. Another group took the test before they saw the film and a small group took the test without ever seeing the film. The questionnaire specific to the film was administered after the showing.

Results: (a) The main point of the film was effectively communicated. Seventy-three percent of those answering questionnaires listed one or both of the specific economic themes. In addition 21 percent responded in more general economic terms. Seventy-seven percent of the "informed" group and 68 percent of the "not informed" group or an average of 73 percent of both groups replied "yes" to a query as to whether the point of the film was made effectively. Self estimates of whether the film influenced the subjects showed that approximately half thought they had been influenced and half thought they had not. (b) All subjects except the high-school students were asked whether such a film has a place in an economic education program. Two-thirds or 67 percent thought it had; 14 percent were uncertain, and 19 percent believed that it does not. Thus the conclusion is drawn that teachers—and future teachers—feel such a film has a place in an educational program even tho they may not agree completely with its conclusions. (c) Knowing the sponsor does make a difference in the way in which the film is perceived. A comparison of the "informed" and "not informed" group showed that more of the subjects who knew the sponsor stated that the main point of the film was to propagandize for big business than those who did not know the sponsor. Data in the study suggests that knowing the sponsor may help the subject establish a frame of reference in which he may deal sympathetically with the argument of the film by removing an area of conjecture and suspicion. A large majority of those answering questionnaires approved of the right of a sponsor to state his point of view in a film. (d) The study showed that where the film is seen does make a difference in the way in which it is perceived. Spontaneous comments of viewing audiences indicated that the serious content of a film, such as the one used for the study, is probably hardest to transmit in a purely entertainment situation. Taking it into a classroom indicates immediately that it has something to say which is of consequence for the subjectmatter of that class.—*J. J. McPherson.*

KAY, LILLIAN WALD. "A Comparison of 'Educational' and Cartoon Film Treatment of the Concept of Productivity." Washington 6, D.C.: Brookings Institution, July 1952.

Purposes: (a) To compare the learning effects of a given cartoon treatment versus a particular "educational" treatment of the concept of U.S. productivity. (b) To compare differences in learning when subjects are told they *must* learn vs. more permissive instructions.

Procedure: Five hundred fifty-six high-school students from two large cities were employed. One-half of the sample was shown two 10-minute cartoons; the other half was shown one 20-minute "educational" film. The author describes the film treatments compared as "highly comparable" in theme, altho content was not experimentally controlled. Each of these groups was sub-divided into the following three subgroups: (a) economics students who were told film was part of term's work and they were held responsible for it; (b) economics students who were informed film was illustration of types of films about ideas discussed in class; and (c) noneconomics students who were told that the teacher thought they would be interested in examples of movies made to be used in schools. Pretests and posttests were administered to all students.

Results: The pretest indicated very high foreknowledge for all material, limiting the sensitivity of measurement, with the exception of statistical material

(questions requiring numerical answers). Only the statistical questions produced significant differences. The statistical questions showed a significant increase in learning during the film for all groups. No superiority for the cartoon treatment over the educational treatment was demonstrated. No significant differences were produced by any of the three prefilm instructions. Girls gained significantly more than boys from "statistical" material. The author concludes that children from working class background learned significantly more statistical material than those from professional homes, and that students planning to attend college learned significantly less statistical information than those who do not plan to go.—*Edmund Faison.*

FILMSTRIP

STAMPOLIS, ANTHONY and HILL, JOHN W. "A Study of Filmstrips Communicating Economic Concepts." Consultants and Assistants: Atkinson, Samuel G.; Grossack, Martin; LeBart, Frank T.; Pratzner, Wesley F.; and Sewell, Laurence S., Jr. A report of the School of Public Relations and Communications Division of Research, Boston University, Boston, Massachusetts, August 1952.

Purpose: To determine whether the additional use of filmstrips in communication of economic concepts actually produces significant increases in learning.

Procedures: Equated student groups were presented with certain material in the area of economic concepts. A control group was given a lecture without audio-visual aids of any type. The experimental group was given the identical lecture combined with a filmstrip covering the subject and oriented to the lecture.

At the close of each instruction period, subjects were examined for material learned during that period. A comparison of group figures for each test was made comparing performance of the group experiencing only the lecture with the performance of the group experiencing the filmstrip in addition to the lecture. At the completion of the experimental period, a series of four instructional experiences, subjects were given a questionnaire to answer, the purpose of which was to obtain indications of attitudes toward the filmstrip as well as to reinforce some of the controls.

Groups were alternately exposed to lecture and filmstrip and to lecture alone, and alternately exposed to the instructors who made the presentation. The experiment was repeated during a second period of time, with new subjects, at which time the role of one instructor in presenting a particular subject thru a particular medium was reversed in an attempt to control for the instructor as a variable.

Results: (a) Only one filmstrip, that for "Business Cycles," showed any statistical significance (.01 in the first series and less than .1 in the second series) in adding to learning beyond the lecture alone. (b) Filmstrips other than the one mentioned above showed no significant increase in learning over the lecture alone. (c) Acceptance-rejection of the instructor by the student may have had some effect on learning, altho this factor was not regarded as statistically reliable in this experiment.—*J. J. McPherson.*

ATTITUDE AND OPINION CHANGE

JANIS, IRVING L., and FESHBACH, SEYMOUR. "Effects of Fear-Arousing Communications." *Journal of Abnormal and Social Psychology* 48: 78–92; January 1953.

Purpose: "The experiment was designed so as to provide measures of the effects of three different intensities of 'fear appeal' in a standard communication on dental hygiene, presented to high-school students."

Procedure: A 15-minute illustrated lecture on dental hygiene was prepared in three different forms. Each form contained the same information about tooth decay and the same recommendations concerning oral hygiene practices. But they differed in intensity of fear appeal: (a) the Strong Appeal, emphasizing the threat of pain, disease, and body damage; (b) the Moderate Appeal, describing the same dangers in a more moderate factual manner; and (c) the Minimal Appeal, in which the unpleasant consequences were rarely referred to. Each was recorded, accompanied by different sets of slides, and presented by the same speaker. The subjects were 200 Connecticut high-school students, divided into three experimental groups and a control group. The first questionnaire, in the form of a general health survey, and in which the dental hygiene questions were interspersed, was given one week before the communication. Immediately after the communication, the subjects completed another questionnaire. One week later a follow-up questionnaire was given.

Results: (a) The "fear appeals" successfully aroused affective reactions. (b) All three forms were equally effective in teaching the factual content of the communication and modifying beliefs concerning the characteristics of the proper kind of toothbrush. (c) The Strong Appeal resulted in a more mixed or ambivalent attitude toward the communication, this group appraising it as more interesting and of high quality, yet showing the greatest amount of subjective dislike and making more complaints about the content. (d) The greatest amount of conformity to the recommendations of the communication was produced by the Minimal Appeal, the Strong Appeal failing to produce any significant change in dental practices. (e) When counterpropaganda to the main theme of the communication was presented a week later, the greatest resistance to such counterpropaganda was evidenced by the Minimal Appeal group.

General Conclusions: "The main conclusion which emerges from the entire set of findings is that the over-all effectiveness of a persuasive communication will tend to be reduced by the use of a strong fear appeal, if it evokes a high degree of emotional tension without adequately satisfying the need for reassurance. The evidence from the present experiment appears to be consistent with the following two explanatory hypotheses: (a) When a mass communication is designed to influence an audience to adopt specific ways and means of averting a threat, the use of a strong fear appeal, as against a milder one, increases the likelihood that the audience will be left in a state of emotional tension which is not fully relieved by rehearsing the reassuring recommendations contained in the communication. (b) When fear is strongly aroused, but is not fully relieved by the reassurances contained in a mass communication, the audience will become motivated to ignore or to minimize the importance of the threat."—*William Allen*

JARRETT, R. F., and SHERRIFFS, ALEX C. "Propaganda, Debate, and Impartial Presentation as Determiners of Attitude Change." *Journal of Abnormal and Social Psychology* 48: 33-41; January 1953.

Purpose: To determine the effects of the following types of presentation of arguments upon the modification of attitudes: "(a) a direct argument in favor of one rather extreme attitudinal position over the opposite position; (b) a debate situation in which the two systematic presentations are submitted in a controversial atmosphere; and (c) a situation in which a single individual presents both of these opposed positions in impartial juxtaposition."

Procedure: Each of four experimental groups were exposed to a written argument on the relative value of men and women in our culture. These communications were written as follows: (a) a strong pro-male argument, (b) a strong pro-female argument, (c) an impartial presentation of both pro-male and pro-female arguments, and (d) a debate. A fifth group (control) read an essay on an unrelated topic. The subjects were 815 University of California students enrolled in a course on personal and social adjustment open to nonpsychology majors. Subjects were administered a disguised attitude test on Friday. On Monday they were subjected to one of the communications, following which they again took the test. Data was analyzed by means of an ordinary analysis of variance to determine the changes in attitude.

Results: "Men and women Ss varied in their responses to these conditions, thus confounding the interpretation of the findings, but the results, though not in each case statistically significant, are not inconsistent with our hypotheses concerning the nature of attitude change. These hypotheses imply, in our view, (a) that under direct argument, groups of Ss should change in the direction of the argument. This implication was verified by our data, as it has often been before. (b) That in the debate situation, Ss would move in the direction of their pre-existing bias, the amount of this change depending upon the degree of emotional involvement in the attitude. The first part of this implication was confirmed for the male Ss but remains equivocal for the females because of the not completely unexpected but rather surprising pro-male initial position of the female Ss. Lack of a satisfactory measure of emotional involvement leaves us without a test of the second part of this implication, namely, (c) that in the impartial presentation context Ss would become more moderate in their attitudinal position. This was also verified for the males, but for the reason given above the results for the female Ss are hard to interpret."—*William Allen.*

PARRISH, JACK A., and CAMPBELL, DONALD T. "Measuring Propaganda Effects with Direct and Indirect Attitude Tests." *Journal of Abnormal and Social Psychology* 48: 3-9; January 1953.

Purpose: (a) To compare the relative effectiveness in changing attitudes toward the Kuomintang Government of China by two typical radio styles used in informational programs: the monologue speech vs. the interview-type presentation. (b) To study propaganda effectiveness thru the use of disguised attitude measures.

Procedure: Four versions of a dummy radio program were recorded as transcriptions and presented to 8 classes of elementary psychology students (47 students in each group). The scripts were written as Pro-Kuomintang Monologue,

Pro-Kuomintang Interview, Anti-Kuomintang Monologue, and Anti-Kuomintang Interview. The experimental groups listened to one or another of the four transcriptions and immediately took the attitude tests. A Control group (2 classes) took the tests without the propaganda exposure. Three kinds of attitude tests were designed, two as indirect (one in an information-test format and one asking for estimates of group opinion) and one as a direct indicator of attitudes. The experiment was limited by the fact that the effects of propaganda were measured immediately after exposure, making generalizations to more long-term effects unwarranted.

Results: (a) As measured by all three attitude tests, the Anti-Kuomintang transcriptions were highly effective, the Pro-Kuomintang ones only marginally effective. (b) The monologue-interview differences in presentation of the materials showed no effect at all on attitude scores. (c) However, the interview presentations were judged to be less propagandistic than were the monologues. (d) The direct attitude test was more reliable than the indirect tests. (e) The information test (indirect measurement of attitudes) was judged to reflect most sensitively the propaganda.—*William Allen.*

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